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MAY 19 1944

MAY, 1944

fuel oil & oil heat

$3.00 a Year, 25 Cents a Copy

Table of Contents Page 5

Quiz for Heating Dealers

—who want bigger postwar sales!

What will be the BIG postwar heating market?

In recent years, the *average* cost of dwelling units has been approximately $4,500. It takes no prophet to see that *after* the war the big volume market will *again* be in these price brackets. That's where the mass oil heating sales will be . . . and the mass profits, too, for alert dealers who act *now* to establish control over this market in their territory.

Who will be the LEADER in this field?

Before the war, **FLUID HEAT** was outstanding in this mass market . . . with a complete line of burners, boiler units, furnace units, and water heaters. **FLUID HEAT** pioneered many new developments in the oil burner industry. Today **FLUID HEAT** is gaining valuable experience on a new stratosphere plane heater for the armed services. And after Victory, **FLUID HEAT** will again be back—with many new surprises, growing out of wartime experience, that will help us maintain our position of leadership!

What are you going to do about it?

If you are interested in a new source of supply and would like to tie up with a long-established manufacturer whose merchandise and dealer policy have received universal approval, you can discuss your plans with us in complete confidence. You will receive no extravagant promises. If you are not an Oil Heating Dealer but are impressed by the excellent future of this business, then be the first in your vicinity to file your name with **FLUID HEAT** for postwar discussions. Write today to: **HEATING DIVISION**, Anchor Post Fence Co., 6700 Eastern Ave., Baltimore-24, Maryland.

fluid heat
OIL BURNER

"World's Economy Champion"

A PRODUCT OF THE ANCHOR POST FENCE CO., BALTIMORE-24, MD.
Established 1892

EP

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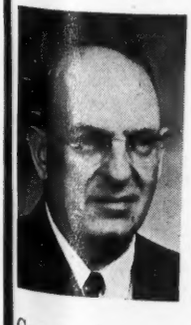
Names in the news

Harold S. Sharp, until recently vice-president of Henry Furnace & Foundry Co., is president of the newly formed Cleveland Humidifier Co., which has acquired manufacturing and sales rights on Monmouth Humidifiers, formerly made by Monmouth Products Co., Cleveland. The new Company's plant is at 7802 Wade Park Ave., Cleveland, 3, Ohio.

Paul B. Holmes, for several years Washington Branch manager for National Radiator Co., Johnstown, Pa., has been appointed Sales Manager of the Heating Div. at the Company's head office. While in Washington he served as the Company's representative in war contract negotiations.

John S. Case has been made factory manager of Anchor Post Fence Co.'s Baltimore plant, succeeding V. W. *Heggie* who resigned last year to accept a Navy commission as Lieut. Commander. Before joining Anchor Post in 1936 as assistant engineer in the Heating Div., Case was with Robbins & Myers, Springfield, Ohio.



Victor Lazo, for a number of years sales manager of Pierce-Phelps, Inc., Philadelphia oilheating distributors, has been appointed sales manager of York-Shipley, Inc., York, Pa., manufacturers of York-Heat oilburners and units. He will also head the Company's postwar planning.

fueloil & oil heat

VOL. 3 NO. 1

MAY
1944

CONTENTS

SUBJECT	PAGE	AUTHOR
Midgets of the Air	28	A. E. COBURN
Service on Regulating Valves	30	J. W. SCHULZ
Ration Advisory Service	33	
Ration Plan Changes for 1944-45	38	
R.F.C. Burner Stocks	42	

NEWS		*DEPARTMENTS*
	5	Names in the News
Further "E" Awards	32	
	10	Oilheating Trends
Consider More Tank Installations	51	
	52	Readers Problems
Industrial Conversions in West	55	
	58	Degree Day Tables
Non-Residential Hardship Relief	55	
	60	New Products
N.E. Industry Meetings	62	

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VOLUME 3, NUMBER 1 OF FUELOIL & OIL HEAT. PUBLISHED MONTHLY BY HEATING PUBLISHERS, INC., 232 MADISON AVE., NEW YORK, (16), N. Y., BY CONTRACT WITH FOWLER-BECKER PUBLISHING COMPANY, OWNER OF FUELOIL JOURNAL (VOL. XXII, NO. 11), AND HEATING JOURNALS, INC., OWNER OF AIRCONDITIONING & OIL HEAT (VOL. XVII, NO. 5), MAY, '44.

HEATING PUBLISHERS, INC., 232 Madison Ave., New York, 16
Lexington 2-4566

A. E. COBURN, *Editor* — ROBERT GRAY, *Business Manager* — A. G. WINKLER, *Advertising Manager*

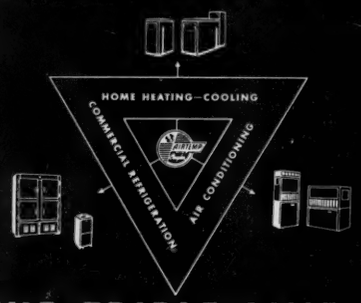
Pacific Coast Representative: Don Harway
816 West 5th St., Los Angeles 13, Cal. Phone: Mutual 8512

SUBSCRIPTIONS

Yearly: $3
Canadian: $4.35
single copy: this issue 25¢

DISPLAY SELLS GOODS . . . IN ANY LINE

People buy with their eyes! The better the product—the better the display—the quicker a sale is clinched. Chrysler Airtemp believes proper display of heating, air conditioning and commercial refrigeration equipment will step up sales volume in the postwar period . . . that it will cut the cost of selling and increase the dealer's profits.



THE TRIPLE LINE

CHRYSLER AIRTEMP BRINGS TO THE HEATING DEALER A DISPLAY LINE—THE TRIPLE LINE

Prospects will feel rewarded for visiting a Chrysler Airtemp dealer because the products are to be so handsomely and functionally designed . . . built around advanced Chrysler Airtemp engineering . . . priced to meet the needs of even modest budgets.

The Triple Line opens up a new conception of comfort the year 'round in the home and efficient air conditioning and refrigeration in commercial establishments.

In the postwar period, new building and modernization will create a market for heating, air conditioning and commercial refrigeration that provides the heating dealer, with the Chrysler Airtemp Triple Line, opportunity for 12 months profitable operation each year.

Direct dealer contracts will be available for just the Chrysler Airtemp heating line—or for heating in combination with air conditioning or commercial refrigeration—or for all three lines.

The attractive product display opportunities will bring interested prospective buyers to your place of business.

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MEMBER I.C.I. INDOOR CLIMATE INSTITUTE SYMBOL OF GREATER INDOOR COMFORT

Next Month's Advertisement Will Be Devoted to the Subject of Outside Selling.

BUY WAR BONDS

CHRYSLER AIRTEMP

AIRTEMP DIVISION OF CHRYSLER CORPORATION • DAYTON, OHIO

Tune in Major Bowes every Thursday, CBS., 9 p. m., E. W. T.

PRECISE ENGINEERING

of Webster Electric FUEL UNITS

Gives Year In and Year Out Service With Minimum Attention

Webster Electric Fuel Units cut service costs . . . give year in and year out service with minimum attention . . . save those extra profit dollars.

ONLY WEBSTER ELECTRIC FUEL UNITS GIVE ALL THESE *Advantages:*

GEARS: Gears of the Webster Electric Fuel Units are of the external involute type making a positive displacement pump of proved dependability. Due to their self-cleaning action, the accumulation of gum and dirt between the teeth is minimized. They are quiet and vibration-free in operation.

VALVES: The valve section of the Webster Electric Fuel Unit contains two major features:

1. The all-metal, self-aligning, bellows-type seal is easily removed for inspection by use of a standard wrench.
2. The double-ended needle valve gives freedom from sticking or binding and provides instant and positive cut-off.

STRAINER: The strainer in the Webster Electric Fuel Unit is monel metal. It is conveniently located for removing and cleaning. It is taken out of the unit vertically through the top of the housing. There is no chance of spilling oil.

SEAL: The mechanical seal of the Webster Electric Fuel Unit is of the refrigerator type. It is readily accessible for inspection . . . the entire seal and shaft assembly requiring the use of only two simple tools.

These factors make it easy for Webster Electric Authorized Service Stations and Sales Representatives in all parts of the country to provide 100% service to users of Webster Electric Fuel Units. They are reasons why Webster Electric's leadership in the oil burner field will bring new profits to wide awake dealers when peace comes. Send for a list of Webster Authorized Service Stations and Sales Representatives.

Let's All Back the Attack...

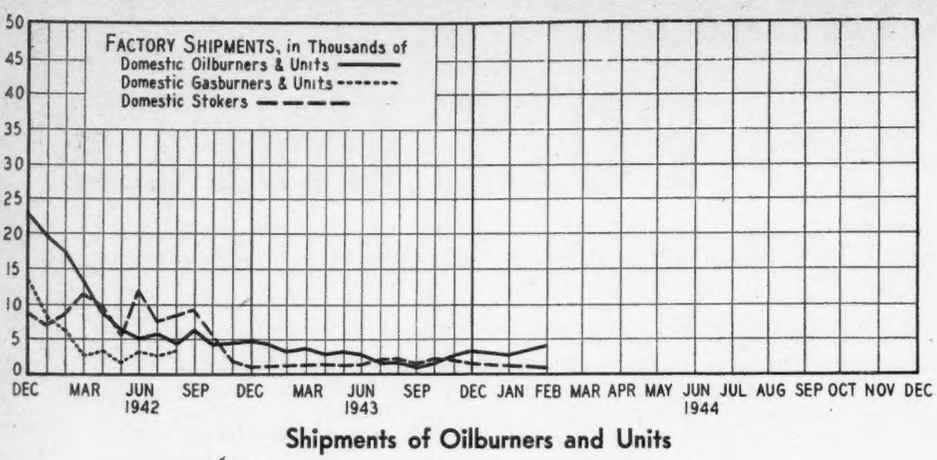
BUY *EXTRA* WAR BONDS

★

WEBSTER ELECTRIC COMPANY, Racine, Wisconsin, U. S. A.
Established 1909. Export Dept.: 13 E. 40th St., New York (16), N. Y.
Cable Address: "ARLAB" New York City

WEBSTER ELECTRIC

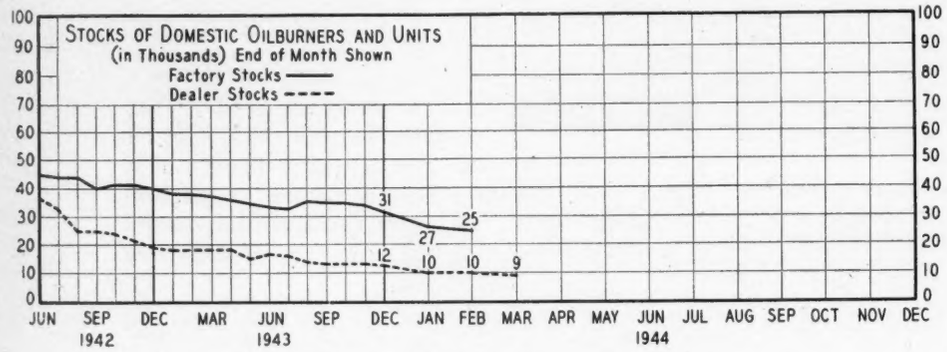
"Where Quality is a Responsibility and Fair Dealing an Obligation"


FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Gasburners & Units
Domestic Stokers
DEC MAR JUN SEP DEC MAR JUN SEP DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1942
1943
1944

Shipments of Oilburners and Units

Adjusted to include manufacturers other than the 85 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	FEBRUARY			TWO MONTHS		
	1944	1943	Percent Change	1944	1943	Percent Change
Conversion	3,550	1,744	+103.3	5,686	4,044	+40.7
Boiler units	274	849	— 67.7	543	1,502	—63.7
Furnace units	302	451	— 33.1	446	1,681	—73.5
All domestic	4,126	3,044	+ 35.6	6,675	7,227	— 7.6
Commercial	2,997	3,569	— 16.0	5,918	7,722	—23.4
Total	7,123	6,613	+ 7.7	12,593	14,949	—15.7



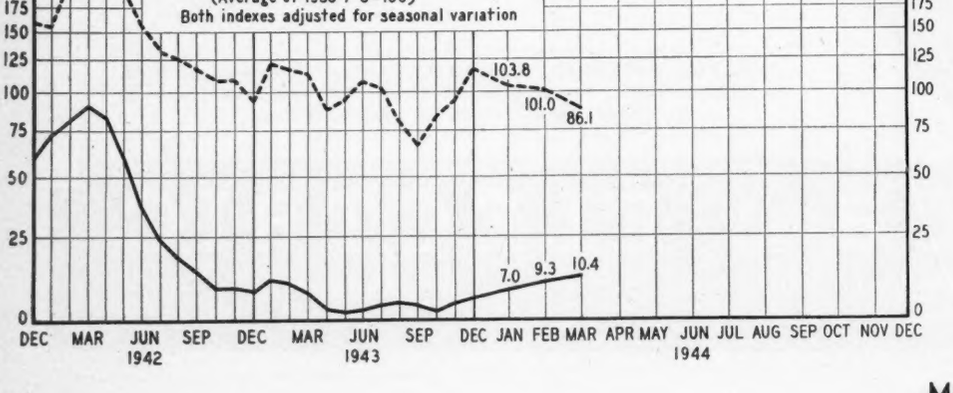
March Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS		BOILER-BURNERS		FURNACE-BURNERS	
	Top price*	Low price	Top price*	Low price	Top price*	Low price
Highest	$350	$199	$645	$380	$715	$395
Lowest	200	165	400	356	400	285
Mar. Aver.	265	183	496	369	492	352
Feb. Aver.	268	181	510	383	506	368

*Top price key dealers for conversion burners are those whose minimum retail prices are $200 or more; for boiler-burner and furnace-burner units (exclusive of ductwork) those whose minimums are $400 or over.

Price Index: Conversion Burners: Jan. 1940 is 100%

WHOLESALE				RETAIL			
March	108.0	Six months ago	104.1	March	110.1	Six months ago	111.0
February	105.7	Year ago	103.6	February	112.1	Year ago	108.2



Oilheating Trends

INSTALLATIONS OF DOMESTIC oilburner and unit replacements in March are estimated at 1,127, up 133.2% from the same month a year ago. This compares with 3,896 in February and 6,624 in January, a normal seasonal trend for this class of sale. Permit figures showed a March gain over last year of 167%, indicating that the industry at large is doing more replacement work than the key dealers who report monthly for this study. Their gain rate was 107%. A few large dealers who have burner stocks are not anxious to sell them for replacements unless the need is real, as they prefer to have some on hand when war ends, to make new sales before the factories will again be able to supply them.

BURNER STOCKS: Stocks of domestic burners and units in dealer hands at the end of March are estimated at 9,000. Notice that a new chart appears for the first time this month, tracing the shrinkage of factory and dealer stocks since June 1942, the month after manufacture of burners for general civilian sale was stopped. Factory stocks on February 29, the last date available, were 24,893 domestic burners and units. At the start of the month they had been 27,396. Shipments during the month were 4,126, indicating new production of 1,623.

BURNER PRICES: The index shows a twist in March, with conversion wholesale prices up more than two points and retail down by about the same amount. The retail decline, which was also found in five of the six price tables, indicates some competition showing up for replacement business, especially from small dealers who appear to be going after it.

SERVICE INCOME: Reporting dealers had March service department income averaging $2,075, a gain of 16.6% over $1,780 in March 1943. A comparison between March and February is interesting. February was the first month in two years in which the service dollar average was lower than the previous year's comparison. Fading every month, service manpower had shrunk to where in February it had to dash from one emergency service call to another, which is never the profitable part of service business, for there isn't time for tune-ups, repair and accessory parts sales. March, with less emer-

gency pressure, came back to the plus column, indicating that the better type work was again being done.

GETTING BURNERS: Some 30% of dealers have reported inability to get burners for replacement sales. RFC has a stock of several hundred, which it took off dealers' hands when they needed money. A list of these, with specifications and their location, will be found in another section of this issue. Dealers were asked this month if they had had experience in buying from RFC stocks. Eleven percent of those heard from have bought from RFC. Three-fourths of those who bought say they paid more than factory prices, but not enough more to kill the profit in the resale. RFC must get for the burners its investment, plus interest and warehousing costs.

OIL TRUCK MANPOWER: Most serious problem facing fueloil distributors is getting and keeping drivers. In several cities they have been declared "locally needed" but the deferment is only until June. Based upon the average position of all companies reporting: for each 100 drivers employed a year ago this month, they now have 90; of the 90, 32 are classified 1A and have temporary deferments until the end of the heating season. Manpower policies are foggy at the moment, but some of these men will be lost.

FUELOIL STOCKS: While fueloil bulk stocks would ordinarily be of little concern at this season, with peak demand over the hill, yet a number of larger oil companies have feared that they may choke storage this Spring in Eastern states, before Summer fill-ups start when the new coupons are distributed. This thinking is based on the large capacity of the "Little Inch" pipeline, now carrying distillate fuel oil. Some fear that the line can't carry 100-octane aviation gasoline, the only other refined product moving Eastward in volume, without contamination of the product, and thus will have to continue carrying fueloil. In any event, there seems little probability of a chokeup, with Eastern distillate primary storage less than a third full at Mid-April.

Retail fueloil distributors also have several million barrels bulk capacity for heating oil. They were asked how full were tanks on April 1. A weighted average of all reporting showed: (PAW District I)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
March		3 MONTHS			March		3 MONTHS	
1944	1943	1944	1943		1944	1943	1944	1943
0	0	0	0	Albany, New York	..	..	..	..
6	0	29	6	Baltimore, Maryland	0	56	0	186
..	..	..	..	Binghamton, New York	0	0	0	0
..	..	..	..	Bloomfield, N. J.	8	0	8	0
25	15	71	37	Boston, Massachusetts	0	5	0	6
2	3	21	3	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, New York	2	4	28	5
..	..	..	..	Des Moines, Iowa	0	0	0	0
17	0	38	0	Detroit, Michigan	401	359	1089	731
0	6	0	0	Elizabeth, N. J.	0	8	0	8
7	0	18	1	Freeport, New York	..	..	..	..
..	..	..	..	Greenwich, Conn.	0	1	0	2
..	..	..	..	Hackensack, N. J.	0	0	0	0
0	5	7	6	Hartford, Conn.	..	..	..	..
1	0	0	1	Irvington, N. J.	0	0	0	0
..	..	..	..	Lynn, Massachusetts	0	0	0	0
0	0	6	4	Milwaukee, Wisc.	..	..	..	..
16	3	37	15	Minneapolis, Minn.	0	0	0	1
3	1	10	2	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	0	0	0	0
7	2	20	4	Mt. Vernon, New York	..	..	..	..
11	2	41	10	New Bedford, Mass.	..	..	..	..
1	0	2	1	New Haven, Conn.	..	..	..	..
0	2	0	4	New Orleans, La.	..	..	..	..
..	..	..	..	New Rochelle, N. Y.	0	0	0	0
..	..	..	..	Norfolk, Virginia	0	69	1	156
0	0	1	2	Oakland, Calif.	..	..	..	..
13	1	42	12	Omaha, Nebraska	90	0	184	1
0	0	0	1	Orange, New Jersey	0	0	0	0
0	0	5	0	Paterson, N. J.	0	0	0	0
..	..	..	..	Plainfield, N. J.	7	0	7	0
2	0	10	0	Portland, Maine	..	..	..	..
..	..	..	..	Portland, Oregon	107	126	208	1030
5	0	18	9	Poughkeepsie, N. Y.	..	..	..	..
1	0	3	0	Providence, R. I.	0	0	0	0
..	..	..	..	Reading, Penna.	0	0	0	0
0	0	0	1	Richmond, Virginia	0	0	0	33
0	0	0	0	Rochester, N. Y.	..	..	..	..
1	2	8	2	Rockville Center, N. Y.	0	0	0	0
0	0	0	0	Salem, Massachusetts	0	0	0	0
7	6	19	21	St. Louis, Missouri	0	0	0	0
10	0	15	5	St. Paul, Minnesota	0	0	0	1
0	0	5	2	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Washington	182	..	330	..
..	..	..	..	Springfield, Mass.	1	5	1	12
0	0	4	0	Stamford, Conn.	..	..	..	..
..	..	..	..	Trenton, New Jersey	0	0	0	0
..	..	..	..	Utica, New York	0	0	0	0
7	4	26	9	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	0	0	0	0
0	4	5	8	White Plains, N. Y.	0	0	0	0
1	0	3	3	Wilmington, Delaware	0	46	0	50
10	0	27	7	Worcester, Mass.	..	..	..	..
10	5	15	5	Yonkers, New York	..	..	..	..
163	61	506	181	*Totals*	798	677	1856	2216
+167.0		+179.4		*Percent Change*	+17.9		—16.3	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

Kerosene bulk storage	45% filled
Distillate bulk storage	57% filled
Residual bulk storage	27% filled

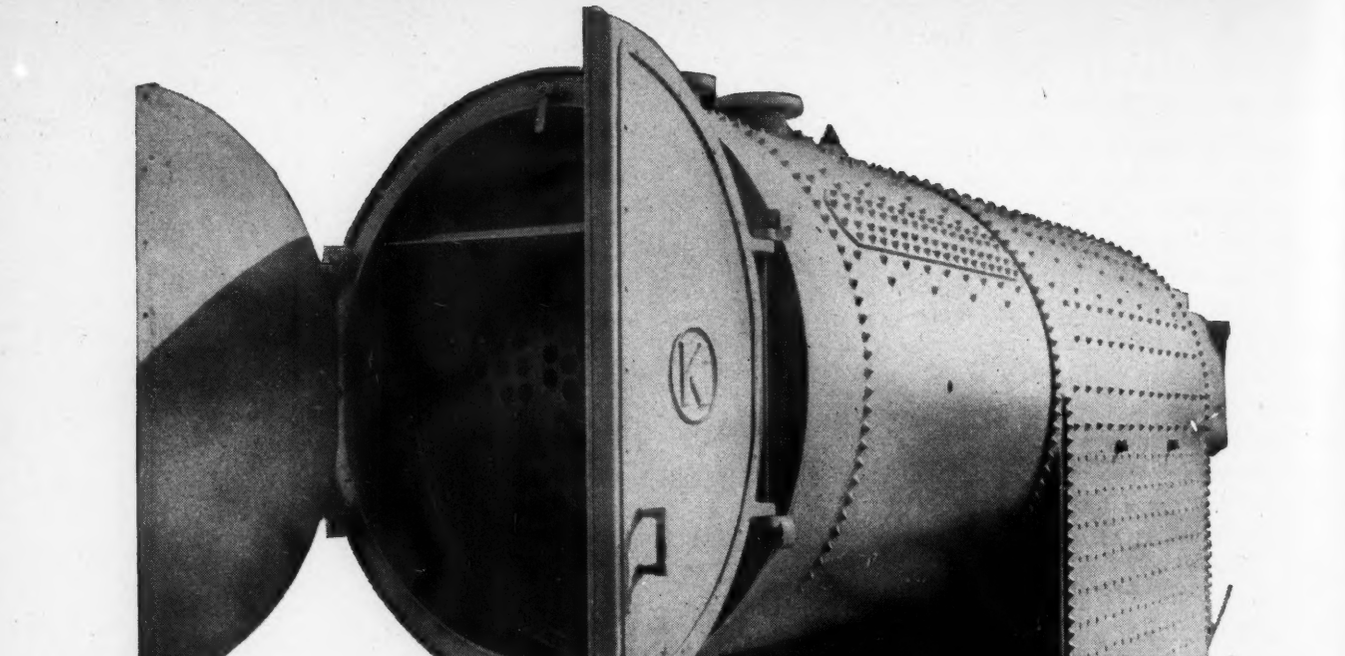
On April 1, about one-sixth of the season's business remained to be done, including fills for Summer hot water, so the distributor, or secondary, distillate storage on April 1 was somewhat less than half of what those companies will need to finish this ration season, a far from tight storage picture, everything considered.

Midwest distributor stocks on the same date were considerably higher than Eastern, not in gallons but in percent of storage capacity. With kerosene omitted because of insufficient reports, April 1 distributor storage position in PAW District II was:

Distillate bulk storage	68% filled
Residual bulk storage	69% filled

OIL TYPES CHANGING: For a number of reasons, distributors have reported from time to time increasing service calls due to the oil. With product scarce, a lot of odds and ends from "teakettle" topping plants get into the market in particular

(*Continued on page 64*)



KEWANEE
...for High Pressure

This rear-end view of a Kewanee (500 Series for High Pressure) shows some of the reasons why it produces steam with minimum fuel.

The many long tubes thru which the hot gases must pass permit the water in the boiler to absorb all the usable heat.

Well-arranged tube-spacing induces *rapid circulation* . . . a further aid to efficiency. Refractory lined doors prevent heat from escaping.

For Oil, Gas or Stoker . . . or hand-fired Coal
25 to 304 Horse Power
100, 125 and 150 lbs. Working Pressure

ARMY E NAVY

KEWANEE BOILER CORPORATION
Kewanee, Illinois

75 YEARS

Hot Midgets of the Air

Aircraft Heaters Not Yet Ready for Domestic Use

By A. E. Coburn

NEWSPAPER HEADLINES in recent weeks have told the public of marvels in postwar heating to come out of the present development of aircraft heaters. News and feature stories, following demonstrations of gasoline-burning aircraft heating equipment, have predicted an era when the heating plant would be relegated to the attic or hung from any convenient floor joist in the basement or utility room Such development for postwar may come, but it is not yet in sight, and no responsible manufacturer is yet in position to promise such a compact and satisfactory heating plant.

The urgency of wartime necessity has fathered the development of some outstanding heating equipment for special uses. Much of the spectacular development has been in the field of aircraft heaters, de-icers, and engine warmers. Space and weight considerations have made essential a high heat output from a relatively small and light heater unit that can be installed in the limited wing and body spaces of a crowded military airplane. High altitudes, extreme cold and lack of heat insulation has made it necessary to get fantastic heat outputs from these units to keep the personnel and equipment from freezing. Though these conditions have been quite satisfactorily met, the equipment is far from ready for the average domestic or commercial installation.

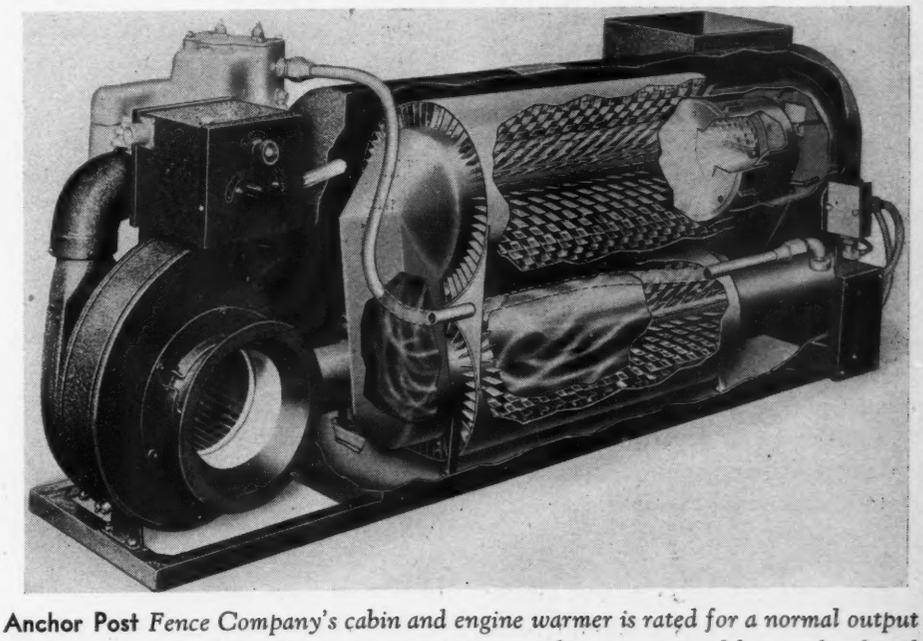
Anchor Post Fence Company has developed a gasoline-burning unit of 90,000 Btu capacity that would fit comfortably into a sailor's duffle bag. This unit is relatively large and has been designed particularly for flying boats and large airplanes. It burns aviation gasoline which is vaporized in a specially designed firing head and burned in a cylindrical metal combustion chamber less than 6 ins. in diameter. It uses low velocity air through relatively wide passes around the outside of the chamber, and operates at a very low sound level. The unit uses "ram" air scooped from outside when in flight, and is powered with an integral motor-blower unit when the ship is not moving. One other Fluid Heat model with a 15,000 Btu output is 3.5 x 5 x 18 inches overall, elliptical in shape, and weighs 7.3 pounds with all its controls. This heater depends solely on "ram" air in flight.

Norge has developed a self powered unit for use where electrical energy is not available. This unit, using G.I. gasoline of from 78 to 130 octane, will operate six hours on its own fuel supply, delivering 60,000 Btu per hour. The power supply is a 2-cycle gasoline engine. The total dry weight is 45 pounds, and overall dimensions are 12 x 16 x 24 ins.

Stewart-Warner, manufacturer of the "South Wind" gasoline burning automobile heater, has expanded this line into a dozen different models of gasoline fired heaters for aircraft, boats, tents and special heating uses. The line ranges from an 8,000 Btu unit about the size of an alarm clock to a 200,000 Btu unit of roughly the size of an office waste basket. This 10-in. diameter unit is 15 ins. long and weighs 21 pounds. It has been tested at 327,000 Btu per hour, but delivers 100,000 Btu on its own power. "Ram" air scooped from outside the airplane in motion makes possible a normal output of 200,000 Btu per hour.

Surface Combustion's "Janitrol" line of aircraft heaters is now being built in four sizes: 15-, 50-, 100-, and 125,000 Btu per hour. The larger capacity heaters are fired with pressure nozzles and spark ignition, unlike most other heaters which vaporize the gasoline and ignite it with a hot wire or "plug." These units operate either on ram air or on air supplied by an integral motorized blower. The 100,000 Btu Janitrol has a 7-in. diameter shell and is 29½ ins. long.

Most manufacturers of aircraft heat-



Anchor Post *Fence Company's cabin and engine warmer is rated for a normal output of 90,000 Btu per hour. It vaporizes aviation gasoline in a special burner head and operates at a very low noise level.*

This de-icer *(the one on the left) is Stewart-Warner's Model 911, rated at 200,000 Btu per hour.*

ing units are considering the possibility of firing them with manufactured or natural gas for peacetime uses, and there has been a considerable amount of experimentation with distillate oils. All of them at present operate on gasoline.

All these aircraft and special purpose heaters are direct-fired warm air with forced circulation supplied either from outside air pressure or from integral blower units. There has been no research reported on the development of midget steam or hot water units of comparable size and capacity, though this undoubtedly will follow when serious development for peacetime use is possible.

Major problems of changing this specialized heating equipment to peacetime use fall into about five interrelated subjects: (1) fuel and method of firing; (2) cost of the equipment; (3) life of the equipment; (4) sound level in operation; and (5) space required. The problem of adjusting these considerations must be undertaken in all departments with an eye to maintaining or increasing the operating efficiency of the units.

Fuel

One of the first questions any oilheating man will want answered concerns the grade of oil that can be used in the units. It is rather strongly believed that equipment requiring aviation gasoline for fuel would find a very limited market in the domestic and commercial fields, though all this equipment at present is designed particularly for that fuel. It is not feasible or desirable to carry two grades of fuel on an airplane. The heaters and the engines must take their fuel from the same tanks. In spite of the fact that burning aviation gasoline presents some design problems at various altitudes, the fact remains that it does burn quite readily and can be vaporized and burned in spaces that make it difficult to use distillate oils.

There has been considerable work already done in some laboratories on the problem of burning distillates in these units. Most of the units have vaporizing burners, though Surface Combustion has a line of units fired with gasoline-burning pressure burners. Vaporizers, even those using gasoline, are not free from trouble. The gasoline is heavily leaded, and the temperature of the vaporizing surfaces must be kept high enough to oxidize the lead and carry it away in the flue gases. This temperature in all cases may not be high enough to burn free the hard carbon that would be likely to form when distillate oils are used.

Further, the rate of flame propagation through gasoline vapors is comparatively rapid, making it possible to burn large quantities in relatively small space. With slower burning distillate oils it will take more time to burn the same amount of fuel, and will require larger space. This may, or may not, have a material effect on the ultimate size of the units; a subject to be more thoroughly discussed later.

Cost

Though the cost of the ultimate unit that may be produced will depend on almost all other factors in this discussion, it is placed high on the list because it is of prime interest to all oilheating men thinking of a wide market. High efficiency, small space requirements and most other factors are meaningless if the units cannot be produced at competitive prices. There is at present almost no yardstick that can be used to measure probable future cost, since there is not yet enough known about the probable ultimate specifications of these units.

One manufacturer recently pointed out that it is comparatively easy to build satisfactory equipment when "you have only one customer, and that customer doesn't care what the price is," but to make the same equipment to burn cheap oil efficiently in small space, consideration must be given to the price at which it can be sold in a competitive market.

Construction and the materials used in a small unit of high capacity necessarily must be the best. High rates of heat transfer require materials that will stand up under high temperatures, and heating surface must be ample. Extended surface construction is one method of gaining heating surface, and reducing the necessity for high air velocities and resulting noise, but this is an expensive design to produce. Eliminating the fins will reduce the capacity, and may lower the overall efficiency, but it may be necessary to take a few points lower efficiency to hold down the cost. This problem of cost bears directly on the next factor.

Life

Military aircraft have a comparatively short life expectancy, and equipment for them, though designed and built extremely accurately and well, need not have the long life built into it that is expected of domestic and commercial heating plants. Light weight and lack of bulk is essential for air use, though it means sacrifice of the staying qualities necessary for successful normal ground use. Furthermore, airplanes and their equipment are under continuous observation, inspection and service by well-trained ground crews, and can be, if necessary, more delicate and subject to more service and attention than residential heating plants that must operate over long periods without attention.

Present aircraft heaters, depending on their design and particular use, have a normal life ranging from 100 hours up, contrasted with a minimum of 10,000 hours to be satisfactory for residential and commercial application. This indicates heavier and more rugged construction of the units, assuming that the basic design is not greatly changed. Heavier materials in the construction not only will affect the price at which the units must be sold, but also will affect the heat transfer rate and tend to reduce the rated capacity of the unit. Larger construction in an attempt to reduce temperatures in the heat transfer surfaces again will use more material and tend to increase cost. Size and temperatures of heating surfaces

have a direct bearing on the noise factor in the units' operation.

Noise

Midget size aircraft heaters with rated capacities from 15,000 to 200,000 Btu per hour must present extremely large volumes of air to their heating surfaces to carry away the heat represented in the rating. Since most of these units are of unusually small size, the chief method of getting air to the surfaces is by introducing it at high velocities. This results in a sound much like an industrial or furnace type vacuum cleaner. Such a racket is of no consequence in a ship with 2,000 to 8,000 horsepower roaring outside the window, but it bars the units from use on the ordinary heating job.

Ordinary sound proofing probably would have little effect on such a volume of mechanical and air noise. It would be difficult to handle sufficient air volume to develop the rating from the limited heating surfaces without creating a high sound level. The easiest answer would be to increase the size of the unit to provide more surface, and materially reduce air velocity. Fin construction of the heating surfaces presents the additional surface in wider air passes without increasing the original size of the combustion cylinder, but this design is relatively expensive to make. Arbitrarily cutting the air velocity and volume over narrow, smooth passes will materially reduce the capacity of the unit, though it may be possible to develop enough capacity for small uses at sound levels that are acceptable. There is discussion of using small units as built-in unit heaters in the individual rooms of a home, and it might be possible to develop as much as 10,000 Btu per hour without objectionable sound. This is yet to be determined for all types of heater units. It is also not clear how the public, city fire officials, and insurance companies will regard the piping of oil to a number of individual units and carrying away the flue gases through the walls of a house.

There are a number of unit heater applications, such as in factories and other industrial buildings where noise is not a serious consideration, in which the present heaters might be used. In most such applications, however, the extremely small size is not important.

Space

Saving of space and weight, so necessary to aircraft heating, is of much less importance in domestic and commercial heating. It is generally considered desirable to work for more compact domestic heating plants, but there is a considerably greater possible tolerance in this type of work than in airplane heating. Some prewar heating plants were being held to 27 ins. square on the floor in order to be acceptable for use in utility rooms, but this dimension allows doubling or tripling the present size of gasoline-burning units if necessary. It is desirable generally to work to smaller sizes, but the size of the plant in ordinary heating work is secondary to a number of other characteristics.

If it is found necessary to increase the physical dimensions of the present midget heating plants to adapt them for domestic and commercial installation, there will be little harm done. Utility rooms, partial basements, or other space allowed by present-day builders will provide ample space for larger units that may be necessary to burn heavier oils, reduce the sound level, or increase the efficiency.

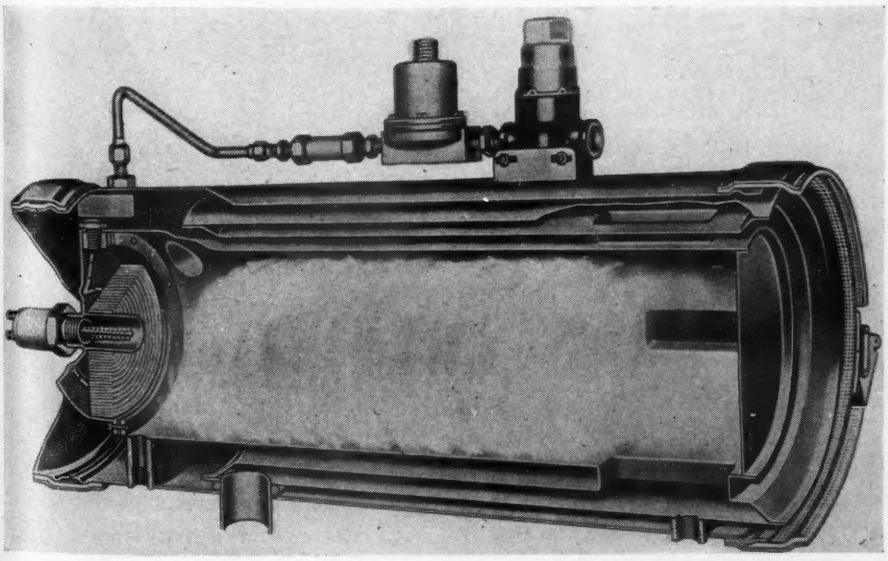
There has been much discussion of putting the heating plant in the attic space, probably suspended from the rafters with a stub chimney through the roof. Since few of the heaters of present design need more than a vent, such an arrangement may be feasible from a technical point of view. This would eliminate the necessity for a masonry chimney, and cut the total cost of the house $40 to $100, according to best estimates. This saving in a chimney for the heating plant may not be too important if 85% of the prospective home buyers are demanding a fireplace, as some recent studies indicate.

Further, if the plant is to be suspended from the roof or mounted on the attic floor, a low sound level will be doubly important. Any mechanical sound in such a location will be telegraphed through the whole structure.

Not Yet Ready

Development of high capacity, midget size heaters at present has been entirely for aircraft and other special applications. The headlines announcing them for residential application are entirely misleading and at least a year or two premature. Manufacturers admit freely that they are not ready for the ordinary heating application, and are not yet willing to predict when they will be. As long as the war demand continues, and the total effort is given to producing present models for their specific uses, experimentation and development for residential and commercial heating must be rather incidental to the production effort. Some work is being done and progress has been reported, but the final product is far from ready for the market.

The industry can be assured that it will be notified amply and well when this equipment is ready for the market. In the meantime, airplane heaters are in the realm of novelties to the average oilheating man and of little practical and commercial importance.



Cut-away view *of Surface Combustion's "Janitrol" vaporizing unit producing 50,000 Btu per hour. Other models using atomizing burners produce as high as 125,000 Btu.*

Service on Automatic Oil Valves

Bellows and Piston Type Valves Used in Fuel Units

by
J. W. Schulz

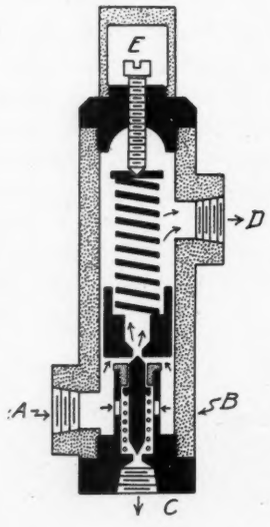
HIDDEN INSIDE the fuel unit of a modern pressure type oil burner is an automatic oil valve, which is operated by the pressure developed by the pump on the burner. This valve (1) opens the line to the atomizing nozzle when the burner starts and tight-closes this line when the burner stops, and (2) regulates the oil pressure on the nozzle while the burner is operating.

The principles and servicing of the oil handling parts used in pressure burners were covered in articles which appeared in the March (p. 32) and April (p. 36) issues of FUELOIL & OIL HEAT. Additional details on automatic oil valves which follow are more understandable to men who check back first on the two earlier articles.

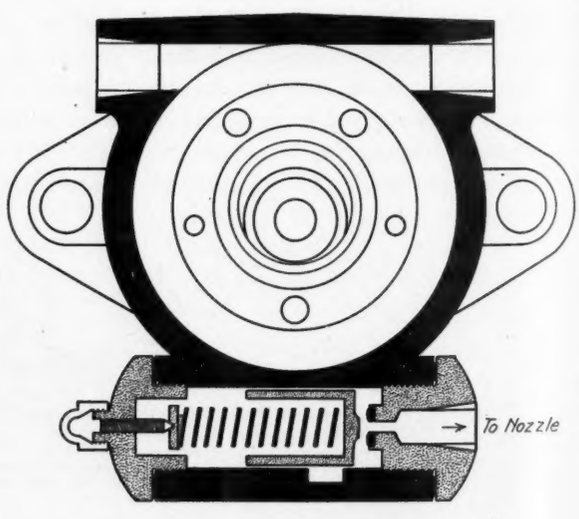
Diag. 1 shows the working parts of a piston type automatic oil valve. Oil from the pump enters port A. The rate of flow may be about 20 gph for a typical domestic burner; the pump may be designed to develop a maximum pressure of 150 lbs.

Study particularly the valve pin, pointed at each end, which is shown in a "cage" at the lower part of this automatic valve. Under this pin is a small spring. The lower end of this spring rests on the body of the valve, the upper end presses upwards on a shoulder of the valve pin. When the piston (located directly above the valve pin, shown as solid black, and pushed downwards by the large spring) moves to its lowest position, it presses down on the valve pin, placing it also in its lowest position. The point at the bottom of the valve pin closes against a valve seat and prevents flow of oil to the nozzle from the port labelled C. The automatic shut-off valve consists of the lower, pointed end of the valve pin, and the seat this rests on when the pin is down. Should this shut-off valve fail to close properly when the burner is idle, for example, oil will drip from the nozzle. Nothing but a real tight-close of the shut-off valve is acceptable, for a drip or seepage of even one drop of oil every five minutes, from the nozzle of an idle pressure burner, causes trouble. It may give "after-burning" which fills the flues with carbon, it may build up coke in the gun tube, it may cause ignition failure, or it may lead to a pool of oil on the basement floor, or in the combustion chamber where the oil will be burned when the burner starts.

With the burner idle, the piston shown in Diag. 1 is all the way down. When the oil pump starts to deliver oil into port A, the piston instantly moves upwards. For a fraction of an inch, the valve pin follows the piston up, being raised by the small spring in the valve "cage." The upward movement of the valve pin opens the shut-off valve wide, and permits oil to flow to the nozzle.



Diag. 1



Diag. 2

The piston continues travelling upwards because the nozzle takes, for example, only about 2.0 gph whereas the oil pump delivers about 20 gph. The shoulder on the valve pin reaches the upper part of the "cage" and the upward movement of the valve pin is stopped, but the piston continues moving upwards. The bottom of the piston leaves the upper pointed end of the valve pin, with which it was in contact, and the extra oil (provided by the pump but not needed for the nozzle) flows upwards through the opening in the center of the bottom of the piston. Port D is the return line connection of the automatic valve.

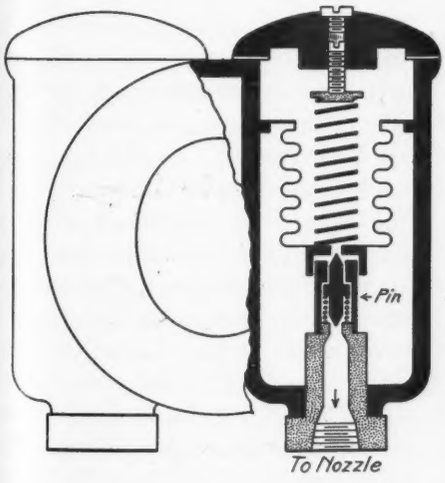
A valve of the type shown in Diag. 1, which has threaded connections for the oil pump line (A), the nozzle line (C), and the return line, or "loop" line of a one-pipe installation (D), can be used in a pinch on almost any pressure burner broken down because of automatic valve trouble. Therefore it is well for dealers to have a valve of this type on hand if they aim to be ready for servicing different makes of pressure burners. The dealer may stock, of course, a bellows type valve as a pinch-hitter instead of a piston type valve.

The valve arrangement in Diag. 2 makes use of a leather seat, specially impregnated, for the shut-off valve in the nozzle line. Here, oil from the pump feeds the chamber under the piston. Lifting of the piston from the leather seat, which does not move, opens the line to the nozzle. Sufficient movement of the piston to the left uncovers a port in the cylinder wall (shown under the piston in the diagram) which is connected to the return line connection of the fuel unit.

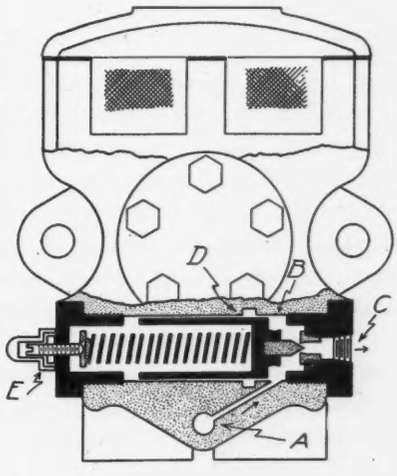
Diag. 3 shows a piston type automatic

valve which is a built-in part of a fuel unit, and in which somewhat different ideas are used to regulate the oil pressure. Channel A brings oil from the pump to the automatic oil valve, and the channel shown leads this oil to the pressure chamber (B) under the piston. Connection C is for the oil line to the nozzle. The first movement to the left of the piston, caused by starting of the oil pump, opens wide the line to the nozzle. Next, the piston continues to move to the left until channel D is uncovered. Encircling the piston, this is connected to the return line port of the fuel unit by openings in the fuel unit casting which are not shown in the diagram. Or, with a special plug removed from the fuel unit to befit it for a one-pipe installation, channel D in effect feeds the extra oil back to the feed line strainer which is part of the fuel unit. The adjustment which gives different nozzle pressure is shown by E.

Diag. 4 indicates the use of a bellows in a combination pressure regulating valve and shut-off valve built as part of a modern fuel unit. The pump output is fed into the main part of the body of the valve, where it causes the bottom of the bellows to rise. The first upwards movement of the bellows permits the valve pin to be raised by the small spring, and opens the shut-off valve. Oil flows into the valve cage through openings in the cage which are not shown in the diagram. Additional upwards movement of the bellows gives opening of the pressure regulating valve, which is made up of the upper end of the valve pin and the opening in the bottom of the bellows. The oil to be returned to an outside tank, or recirculated to the pump inlet on a one-pipe installation, goes upwards through the bellows and to channels in the fuel unit which lead it from the top of the bellows chamber to the proper circuit.



Diag. 4



Diag. 3

The diagrams used to illustrate this article are not actual mechanical drawings of the valves and fuel units; they have been drawn specially to include only the important parts which must be understood to gain a clear idea of how these valves work. Sleeves for the pistons are used actually, for example, in the cast bodies of some piston type pumps. The sleeves form the cylinders for the pistons. Again, for example, a heavy spring which is used only to hold down the stationary portion of the bellows assembly, is not shown in Diag. 4.

After gaining a knowledge of the principles used in these automatic oil valves, a serviceman can recognize, in actual mechanical drawings prepared by equipment manufacturers, which are the important working parts of main interest to the service expert, and which are the parts employed to arrive at refinements, simplify production problems, and hold together the component parts of the different assemblies.

Field check-ups prove that the modern automatic oil valves used on pressure burners give so little trouble that many of the men who today are employed at servicing burners have not yet seen the insides of such a valve. To top that off, careful investigations of the automatic oil valve trouble reported by certain service organizations show that frequently good valves are unjustly blamed for giving trouble.

Where the automatic valve appears to give trouble, usually the symptom is that oil drips from the nozzle for a few minutes after the burner stops. With the firebox red-hot, there is "after-burning"; oil trickling from the nozzle may burn steadily, or there may be a flash of flame in the firebox as each drop of oil from the nozzle hits the firebox floor or the bottom of the gun tube.

The big question lies in whether the shut-off valve leaks, or whether the valve tight-closes properly and the drip from the nozzle is caused by something else. The well-informed serviceman knows that "after-burning" often comes with a good shut-off valve, and when it does it is related to one of these items:

1. *Air in the fuel unit or the line from the fuel unit to the nozzle.* Under nozzle pressure when the burner is running, this air expands when the burner stops, and causes oil to drip from the nozzle. The trouble can be eliminated on some installations by thorough air-ridding of the fuel unit and, where the burner construction calls for this, of the line from the fuel unit to the nozzle. The burner may have to be operated a total of 30 minutes or more to expel the air that gives the trouble, or half a dozen starts and stops may do the trick. Certain burners are stubborn about giving this trouble. The best course a serviceman can follow with them is to disregard a nozzle drip which comes after the burner has run out of oil or after air has gotten into the fuel unit while the burner was being serviced, and check back on the job after the burner has been in use for three or four days to find out if by that time the nozzle dripping has ended.

2. *Suction line leak.* Because it permits air to enter the fuel unit and the nozzle line, a suction line leak may make it appear that there is leaky shut-off valve trouble where there is none. This occurs mostly with outside tank installations. Where a good serviceman encounters signs of a leaky shut-off valve on such an installation, frequently he checks on symptoms of a leaky suction line before concluding the shut-off valve is to blame.

3. *Poor design of line from fuel unit to nozzle.* A large diameter line from the fuel unit to the nozzle causes after-burning in certain burner models. The tendency of the oil to expel the air from such a line is not as great as with a smaller

line because the larger line leads to lower oil velocity to the nozzle. With certain old burners, it helps to substitute 1/4" OD copper tubing for as much as possible of the 1/4" or 3/8" ipt piping between the fuel unit and the nozzle. Or, a rod that fits fairly tight may be placed inside a 3/8" ipt oil line inside a gun tube; if the rod fits very tight, it is well to slot it to provide a channel through which the oil can flow to the nozzle.

Poor design that makes for after-burning may include a high mounting of the fuel unit compared to the nozzle, which together with large oil lines invites pocketing of air, or high spots in the oil line to the nozzle.

To make certain that the shut-off valve is to blame for a drip of oil from the nozzle after the burner stops, a serviceman may arrange for a check-up on the valve for about eight hours on a day when holding the burner idle that long will cause the owner no great inconvenience. The method is to take out the gun assembly, reconnect it to the burner with the nozzle outside of the gun tube, and spray oil for a few seconds into a jar or can. Disregard any drip of oil for about five minutes. Dry the nozzle assembly and place under it a dry pan to catch any oil that may come from it. Make sure that the burner will stay idle, leave the installation for about eight hours, then check back to find out how much, if any, oil has leaked from the nozzle during the test period. A serviceman who has common sense does not have to be reminded to take out the oil burner fuses, disconnect a wire to the motor, or take one or two similar precautions to make sure the burner motor will stay idle until he returns.

Check for Dirt

Where a shut-off valve actually is leaky, dirt frequently is to blame. Taking the valve apart and cleaning it generally is simpler and less time-consuming than cleaning a nozzle. Make sure, first, that you back off the adjustment screw on the fuel unit before you take out the valve cage; it is a good idea to remove entirely the large spring that bears on the bellows or piston before you start to take apart the rest of the valve. On some installations, shut-off valves give trouble every four or five years simply because in that length of time they become fouled by accumulated sludge and sediment from the oil. Use the same careful handling and the same methods for cleaning shut-off valve parts as you use for nozzles.

Where a valve leak is caused not by dirt but by scoring or pitting of the pin or valve seat, replacement of both these parts is the best way out of the trouble, for it gives almost the same assurance against additional trouble that comes of installing a whole new valve. However, skillful servicemen, caught short of proper replacement parts, do not hesitate to grind in the leaky valves in certain models of automatic oil valves, and to guarantee that their efforts will make the valves close tight .

If pressure regulation is erratic or you cannot adjust for the pressure you desire, bear in mind that this may come of:

1. *A dirty strainer in the oil feed line.*
2. *Insufficient pump capacity caused by pump wear or by attempting to fire harder than the pump capacity and design of the automatic valve permits.*
3. *A plugged suction or feed line.*
4. *An air leak in the suction line of an outside tank installation.*
5. *An attempt to use higher atomizing pressure than the burner can give dependably.* (Try using a lower pressure on a nozzle of higher capacity.)
6. *Unusually high vacuum at the pump inlet caused by cold thick oil, high lift from the oil tank, or any other reason.*

By Pass Slots

In modern fuel units, as was covered in the earlier articles in this series, the pressure regulating valves are designed not for tight-closing, but to pass a certain small amount of oil when in their closed positions. A "by-pass slot" or its equivalent is used. For a skillful serviceman, a step that permits use of higher pressure or a larger size nozzle on a special installation or a trouble job may lie in locating the by-pass slot or its equivalent and closing it somewhat (soldering may be the way) so that less oil can flow by the pressure regulating valve when it is in its closed position.

Occasionally there is trouble because of the action of the by-pass slot on an installation firing at nearly the maximum rate for the fuel unit. With the burner running steadily, the fire size decreases, or the oil to the nozzle shuts off entirely, and then the nozzle pressure goes back to normal. The thing to do is install a new or rebuilt fuel unit at once in the interests of safety. Unable to do this, you can install a smaller nozzle and use lower atomizing pressure than was used in the past, even though this gives, temporarily, not the kind of heating you would tune for if you were not facing the hazards in a fire which fades or goes out and then comes back on full strength.

There is one big DON'T for newcomers to service work: DON'T attempt to diagnose trouble in, or tune up, a pressure burner before you have fitted it with a pressure gauge. You cannot disregard this advice and know what you are doing to the burner.

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Balloffet Gets "E"; Others Awards Bestowed

EXCELLENCE in helping to create a new industry in the United States is one deeper meaning of the new Army-Navy "E" flag presented to Balloffet Dies and Nozzle Co., Guttenberg, N. J., on May 4. The company is one which in the last three years has contributed to the establishment of a diamond die industry here; an industry which formerly existed principally in France. Dies for the drawing of metals are cut in small diamonds. Minute orifices as small as 6/10,000 of an inch now are drilled and perfectly polished. Louis Chambre, vice-president, has been in charge of most of the planning and training that has resulted in the award. The company will continue to make oil-burner nozzles.

National Radiator Company was given the United States Maritime Commission's Maritime "M" Award for outstanding production achievement. Presentation of the flag was made to the employees and management at New Castle, Pa., March 31.

Williams Oil-O-Matic Heating Corporation has been awarded a second star for its Army-Navy "E" flag. The original flag, awarded in 1942, received its first star last fall, and the third award was made March 25, as a symbol of the company's continuing excellence in war production.

Owens-Corning Fiberglas plants at Newark, Ohio, and Ashton, R. I., have been granted a third renewal of the Army-Navy Production Award, entitling them to add a third star to their "E" flags. The plants are turning out huge quantities of glass board and textiles.

Ration Advisory Service

Industry Group for OPA Develops Two Interesting Plans

To help fueloil consumers to live within their rations, A. R. Whitman, Director of the Fuel Rationing Division, asked a group of nine men—seven from the Industry and two from Government—to study the possibilities of devising a plan, or plans, whereby a fueloil distributor could let his customers know just how they stand. The group spent three days in April on the problem and submitted to Whitman the report that follows.

CONSUMER ADVISORY SERVICE FOR FUELOIL RATIONING

Report of Industry Committee Meeting, April 5-7, 1944

BACKGROUND

During the peak heating season of the past winter there was much concern, particularly in Government circles, over the number of people who were burning oil in excess of their ration rate. Field studies later determined that, while the number of people overconsuming was serious, there were enough others underconsuming to ease the excess load to a point that it did not upset P.A.W.'s supply program. However, since the principal purpose of rationing is to distribute fairly the stocks available to civilians after the war needs have been met, the purpose was not being served when one group in a neighborhood, by underconsuming, was having to bail out neighbors who burned too much.

Some Government men believed that permitting a customer to deposit his coupons with his supplier contributed to overconsumption, since he could not periodically count the coupons to know how he stood. Industry men resisted this thinking on the ground that, however valid, the major problem now and in next season is trucks and manpower, and that if coupons are not deposited it will be physically impossible to get the oil delivered.

A proposal was then made at a joint Government-Industry meeting in Washington on February 23 that whenever a fueloil distributor accepts customers' coupons on deposit he be required to periodically advise the customer as to his ration status. The concensus of the group, however, was that while this would be a highly desirable service for several reasons, it should be voluntary, not mandatory, and the Government men present accepted this viewpoint.

Most consumers want to play fair, but in the absence of periodic and definite guidance they may unwittingly overconsume. On the other hand, the few who deliberately ignore their self-rationing responsibilities will have little excuse in asking additional oil if they have been warned from time to time by their suppliers.

From the standpoint of the fueloil distributor, keeping customers out of trouble can relieve him of headaches. It prevents some hardship pleas to boards, in which the oil man often has to assist; it prevents many small or bobtail drops, permits better advance knowledge of consumers' immediate needs, for better routing and larger average drops.

By telling consumers at the start of a season that the distributor will render an advisory service, notifying the customer when he is using too much, it should be possible to get substantially all of the coupons in. During the past season, companies operating automatic delivery systems were able to get, on the average, only 78% of customers to deposit coupons . . . much too low a figure for best operation.

At the March 15-16 meetings of the Fueloil Industry Advisory Council this general subject was further explored, resulting in the appointment of a group of seven industry men and two Government men to study and recommend to Industry a plan or plans for Consumer Advisory Service.

PROJECT

To develop a procedure for a Consumer Advisory Service, embracing not only a method of consumer notification, but also a delivery control system that would readily divulge to the system operator the customer's ration position. If possible, the system should be designed so as to require no additional manpower. There should be one system for companies now using automatic delivery methods and another for non-automatic operations. The proposed plans follows:

PLAN NO. 1
FOR AUTOMATIC DELIVERIES

The Committee recognized that the degree-day system of automatic deliveries has minor shortcomings under rationing, since there is little probability that coupon values will, in the future, be adjusted to balance weather conditions. However, since about 45% of fueloil distributors now use D-D methods, and they supply more than two-thirds of all distillate heating oil consumers, it was considered of first importance to find a way to incorporate into existing D-D systems a consumption check factor.

After testing and discarding numerous possibilities, the control card illustrated was decided upon. It requires no extra work by the operator until a customer is getting seriously out of bounds, and from past experience this should not be more than one-fifth of customers.

The upper part of the card lists the customary information, with one exception. Under rationing, it is necessary to deduct a Summer hot water allowance, if the account uses oil for this purpose, before setting up the D-D consumption rate factor. The Committee did not propose a formula for making this deduction. The operator must make his own estimate, based upon what he knows of the customer's habits.

Two members reported that their experience showed average Summer hot water consumption to be 10% and 12%, respectively, of the total ration, but among individual consumers there were wide variations from the average. The OPA allowance for Summer hot water might be used for this reserve, although admittedly this is minimum. The main point is that some deduction be made, by whatever formula. It should be remembered that if the first delivery on the new ration is made at Mid-Summer this year, some oil will be used for hot water before the heating season starts, so this

should be included in the estimate.

In the "Record" section of the card, notice that columns 1, 2, 3, 4, 6, and 7 are the conventional ones applicable to any peacetime D-D system. These are the only ones that will be used by the operator unless a customer starts burning too much oil. The operator will readily recognize when this happens.

Following the example written into the card illustrated . . . when the operator enters the second delivery, November 15, he cannot fail to notice that it took 210 gallons to bring the tank back to full, instead of the 200 gallons expected. He will glance at the elapsed D-D and see that delivery was made at 595 instead of the 600 projected. He knows that the customer is going a little fast, but does not trouble to check the other control columns, since the default is not serious.

But on the third drop, December 18, it takes 240 gallons to fill the tank. It's time to make a check. To learn how much has been burned, the operator adds the three deliveries in Column 2 to the oil in the tank before the start (75 gallons), then subtracts the full tank (275 gallons). The answer is 450 gallons burned, which is entered in Column 5.

To learn how much the customer should have burned, the operator divides the elapsed degree days, (Column 6—1,200 D-D), by the ration consumption rate (3.0) and finds it should have been 400 gallons. The excess is only 50 gallons, but that could become serious unless the burning rate is retarded, for it is 12½% overconsumption.

It is now advisable to send the customer a card, stating his actual consumption, against his proper ration rate consumption, and suggesting fuel-saving measures.

To know at a glance on later deliveries whether the customer is getting worse or better, it is advisable to start using Column 8. This is the consumption rate check, and is found by dividing the figure in Column 6 (1,200 D-D) by Column 4 (450 gallons); the rate is 2.7. Since the original and correct rate was 3.0, trouble is ahead whenever the Column 8 check is lower than the original rate.

Notice that on the next drop the showing was worse, then it started to improve, and by the date of the last drop had almost recovered.

If the customer had finished the heating season without correcting his habits, or at the worst rate shown, 2.6, he would have burned 215 gallons too much, and have been in serious trouble.

In the case study shown on the card the operator sent four warning cards . . . one each after the drops of December 18, January 8, January 30, and February 20. On the March 19 drop he saw substantial improvement in the Column 8 check, and

Plan No. 1—Control Card

Consumer's Name _____

Address _____

(and other characteristics) _____

Par Value New Ration	1500
Add Coupon Carry-over	100
Add Oil in Tank Before Delivery	75
Total Oil Available	1675
Deduct Summer Hot Water	175
Net Available for Winter	1500
Normal Degree-Days	4500
Ration Consumption Rate (D-D per gal.)	3.0
If Change in Ration, Revised Rate	....
Tank Size	275
Reserve	75

	RECORD								COUPONS								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)									
Date	Gals. Del'd — Tot'l Oil	In Tank — Less Resv.	Us'ble Oil	Oil Used to Date	D-D to Date	D-D next Del'y	Cons. Rate Ck.	Should Have Used	Period	Prev. Seas'n	1	2	3	4	5	C & I
									Units		5	5	4	4	4	
									Gals.	100	250	250	200	200	200	400
	200	275							Used	100	100					
Sept. 1		75	200			600			Bal.	0	150					
	210	275							Used		150					60
Nov. 15		75	200		595	1195			Bal.		0					340
	240	275							Used			200				40
Dec. 18	725	75	200	450	1200	1800	2.7	400	Bal.			50				300
	235	275							Used			50				185
Jan. 8	960	75	200	685	1760	2360	2.6	586	Bal.			0				115
	210	275							Used				200			10
Jan. 30	1170	75	200	895	2400	3000	2.7	800	Bal.				0			105
	195	275							Used					150		45
Feb. 20	1365	75	200	1090	2980	3580	2.7	994	Bal.					50		60
	150	275							Used					50	100	
Mar. 19	1515	95	200	1240	3460	4060	2.8	1153	Bal.					0	100	
	160	270							Used						100	60
Apr. 5	1675			1415	4100		2.9	1367	Bal.						0	0

Customer advisory card for Plan No. 1

Date *January 9, 1945*

DEAR CUSTOMER:

Checking your fueloil consumption at the time of our last delivery, we find that you are burning oil somewhat faster than your ration rate permits.

To that date you had burned ***685*** gal.

The correct ration rate was ***586*** gal.

We know you will want to take immediate steps to adjust your consumption rate to stay within the ration. Oil is Ammunition; we're all trying to use it wisely.

You may be able to reduce night temperatures further, close another room, keep more blinds drawn, or if you feel you have done everything, perhaps we can make suggestions.

NAME OF YOUR COMPANY

Address Telephone

Driver's card for use with Plan No. 1

ZONE *E*

Names

Address

Other data

Date	D-D next Dely	Eligible coupons	Credit	Tank Before	Tank After	Gallons Delv'd
Sept. 1	*600*	*750*	*Ok E.E.*	*75*	*275*	*200*
	1195	*550*				

After the September 1 delivery *was made, the operator noted on the card the D-D next delivery and the coupons that should be eligible at about that time. When ready for the next drop, the card is routed to credit department for O.K. and initials. After making the drop, the driver fills in the other columns.*

This card, if kept in the folder with the coupons, is a cross-reference to locate the customer's large control card. It is in the D-D file at 1195, as shown in the second column of the driver's card.

with the peak heating season past, called it a day.

The total operator's time needed in making the extra calculations (over and above what he uses to operate a conventional D-D system) and in filling out and addressing the warning card averages 1½ minutes for each time checked, or 6-7 minutes for this customer during the season. In timing the operation, a slide rule was used, but no adding machine or mechanical D-D calculator.

Assume a particular distributor has 1,000 heating customers. One-fifth of them will probably get enough out of line to be checked and warned. If as much as ten extra minutes were spent during the season on each prodigal customer, the Company's total extra work load for the entire season would be thirty-three hours to conduct such a Consumer Advisory Service. It is inconceivable that the headaches saved, by getting in more of the coupons on deposit, by avoiding small drops when hardship doles are given, by keeping individual consumption closer to the true D-D pattern, would not far more than repay the extra effort.

A suggested form of warning card is shown in an accompanying illustration—also a suitable driver's card for a D-D system.

If folders are used to file coupons, either the driver's card or the control card can be kept in the folder and the other put in the D-D come-up file. An advantage in putting the large control card in the D-D file is that colored tabs can be pasted to the top edge to identify delivery zones. If there are not enough cards for a particular zone in one day to make a load, the same color tabs for the zone can be pulled from succeeding days.

Before leaving the discussion of Plan No. 1, it is well to recall that one system now in use bases consumption rate on gallons per D-D, rather than D-D per gallon. Its consumption rate factor would be .33 instead of 3.0, but the same general method would be used to adjust it for Consumer Advisory Service.

PLAN NO. 2 FOR NON-AUTOMATIC DELIVERIES

It was recognized by the Committee that fueloil distributors not now employing automatic delivery methods have a minimum of clerical help, but that with few exceptions they average more truck and manpower time on the routes, per gallon of oil delivered. So an effort was made to design an effective internal control system to keep customers informed of how they stand on their rations, and at the same time improve field delivery conditions enough to more than offset the cost of clerical help needed to operate the system.

The method worked out—Plan No. 2—not only helps get maximum size drops, but also shows the operator how to deliver a full load in a particular neighborhood with the least stops.

Once set up, the control card is easy to operate. Another strong point in this

system is that the driver need not report how much oil was in the tank.

To start the system with any customer, the driver is told on the first trip to fill the tank. When he turns in the delivery ticket, the card is set up.

Following the illustration of the control card, on Line 1, enter the new ration in gallons. On Line 2 state coupons, if any, left over from past season. Line 3 is the total of 1 and 2. On Line 4, put the amount of the first delivery. Deduct this from Line 3 and show on Line 5 the remaining coupons.

Some of these coupons must be saved for Summer hot water (estimate this on Line 6) if the customer uses oil for the purpose. For the amount to withhold, review the Summer hot water discussion in the description of Plan No. 1. Line 7 is the remaining coupons that can be used for Winter. Enter on Line 8 the oil in the tank after the first delivery is made (presumably full); then adding Lines 7 and 8 show on Line 9 the total oil that can be burned to the end of the heating season.

On Line 10 again show the oil in the tank after the first fill, and on Line 11 set up a suitable tank reserve of probably 60 or 75 gallons, which is the amount the customer should have in his tank when he orders more oil. Subtracting Line 11 from Line 10, enter the difference on Line 12, which is the usable oil in the tank.

Subtract the usable oil, Line 12 from total Winter oil, Line 9, and enter the difference on Line 13 as the control balance. This is the figure to be entered at the top of Column 16. The gallonage represented by this control balance is the remaining coupons for Winter plus the tank reserve that you do not want the customer to burn until the end of the season. In other words, this control balance is the total amount to become available after the usable oil now in the tank has been burned.

You are now ready to operate the system.

Place the control balance from Line 13 at the head of Column 16.

Enter the original delivery from Line 4 at the top of Column 15 and show the date of that delivery at the top of Column 14.

Divide the control balance (shown as 1,275) by total Winter oil (shown on Line 9 as 1,475) to get the percentage of the Winter that remains to be heated by the control balance—in this instance 86%. With a simple slide-rule this calculation takes but a few seconds.

If the customer is to come out even on May 31, the 1,275 gallon control balance must be used in the last 86% of the season, so the oil now in his tank must last him until whatever date hits the point where 86% of the season remains.

Plan No. 2—Control Card

Customer's Name

Address

(and other data)

(1)	Par value new coupons	*1500*	
(2)	Add coupon carry-over	*50*	
(3)	Total coupons	*1550*	
(4)	Deduct first delivery	*200*	
(5)	Remaining coupons	*1350*	
(6)	Deduct Summer hot water	*150*	
(7)	Remaining coupons for Winter	*1200*	
(8)	Add oil in tank after first delivery	*275*	
(9)	Total Winter Oil		*1475*
(10)	Oil in tank after first delivery	*275*	
(11)	Deduct tank reserve	*75*	
(12)	Usable oil in tank		*200*
(13)	Control Balance		*1275*

RECORD					COUPONS								
(14) Date	(15) Gal. Del'd	(16) Control Balance	(17) Per Cent	(18) Next Date	Period	Prev. Season	1	2	3	4	5	C & I
					Units		*5*	*5*	*4*	*4*	*4*	
					Gallons	*50*	*250*	*250*	*200*	*200*	*200*	*400*
					Used	*50*	*150*					
Aug. 1	*200*	*1275*	*86*	*Nov. 17*	Bal.	*0*	*100*					
					Used		*100*					*130*
Nov. 15	*230*	*1045*	*71*	*Dec. 18*	Bal.		*0*					*270*
					Used			*200*				*20*
Dec. 20	*220*	*825*	*56*	*Jan. 11*	Bal.			*50*				*250*
					Used			*50*				*150*
Jan. 10	*200*	*625*	*42*	*Feb. 1*	Bal.			*0*				*100*
					Used							*100*
Jan. 28	*100*	*525*	*36*	*Feb. 11*	Bal.							*0*
					Used				*200*			
Feb. 10	*200*	*325*	*22*	*Mar. 8*	Bal.				*0*			
					Used					*200*		
Mar. 6	*200*	*125*	*8*	*Apr. 12*	Bal.					*0*		
					Used						*200*	
Apr. 10	*200*				Bal.						*0*	
					Used							
					Bal.							

The Fuel Rationing Division of OPA has offered to prepare for industry distribution a chart for each principal weather area showing the per cent of the Winter ration that should remain on each date. The chart will look something like this typical section:

Date	*Per cent of Winter remaining*
Nov. 12	88%
Nov. 14	87
Nov. 17	86
Nov. 20	85
Nov. 22	84

The percentage will run from 100 to 1, and the dates from Sept. 1 to May 31.

Referring to this chart, the operator learns that the 86% point is November 17; the oil now in the tank should last until November 17 if the user is to remain in balance with his ration. A card is now sent the customer stating this date and telling him that his tank should then be one-fourth full, or whatever fraction is represented by the tank reserve. He should order oil when the tank reaches that level.

On the second delivery—in this case the customer asked for it by November 15, or two days early—enter the gallons delivered in Column 15. Subtract this delivery (230 gallons) from the control balance in Column 16 and the new balance is 1,045. Divide 1,045 by total Winter oil, Line 9, 1,475 gallons, and the new percentage is 71.

Look on the chart and find the date representing 71% of season remaining—December 18. A card goes to the customer saying that the oil now in the tank should last until December 18. Repeat the process after each drop.

Looking down the card, notice that after the March 6 drop, the control balance is 125, but that the coupon record shows 200 gallons left. This 200 gallon coupon balance is the total of the 150 gallons that had been saved for Summer hot water and 50 gallons left for heating. The 125 figure in Column 16 is the total of 50 gallons in coupons left for heating and the 75 gallon tank reserve. This explanation will not seriously concern the operator when he reaches that point in the season—he'll set up the April 12 date, content that the customer still has another 200 gallons to be delivered at about that time.

Notice that the system is self-correcting. The percentages for Winter oil always end at zero on May 31. Suppose that in January there is an extra cold week and the driver finds that the customer has used up most of the tank reserve; he can make a drop of 260 gallons. The customer need not catch up on his overdraft all at once to meet his future dates. Instead, the large 260 gallon drop is deducted from the control balance and what's left is spread over the balance of the heating year on a revised lot of dates.

Again, assume that the customer has illness and gets an extra 100 gallons in January. This is added to the control balance and a new percentage and date calculated. The extra 100 gallons is thus spread out over the rest of the heating year.

Plan No. 2 was not developed for automatic deliveries; the customer is told to order oil when he needs it. However, the system does lend itself well to a modified automatic delivery. When the card is sent, telling how long the present tankful should last, the customer is told that a truck may be in the neighborhood before that time and he is asked to cooperate in truck and manpower saving by accepting a delivery whenever the driver may call.

Customer advisory card for Plan No. 2

THIS IS A DOUBLE, TWO-WAY CARD

DEAR CUSTOMER:

Our last delivery should serve you until ***December 20,*** if you wish to remain in balance with your fueloil ration.

On that date your tank should be ¼ full. A card is attached for your convenience in ordering your next delivery. One of our trucks may be in your neighborhood about that time; if it stops at your home, please cooperate by accepting a delivery. Help us conserve gasoline and tires by making certain that your tank is no more than ¼ full when you place your order.

NAME OF YOUR COMPANY

Address

Business Reply order card attached

MY TANK IS ⅛ FULL ☐

MY TANK IS ¼ FULL ☐

Please fill my tank on .....

If no one is at home when driver calls, you are to make delivery and leave the meter receipt at the house.

NAME .....

ADDRESS .....

For the distributor to get full value from this option, he should zone his delivery areas by marking up a map and identifying every customer with a zone. He should then file the customer control card in a date file, using the estimated delivery dates shown in Column 18. On the top margin of this card should be pasted a colored tab to represent a zone. All accounts within a particular square mile or zone would have blue tabs, another red tabs, etc.

When an order comes in from a customer in Zone E (for example, using red tabs) the operator also selects other cards from the same zone to make a load. Those with their cards filed in the nearest dates will also have the nearest empty tanks, which will help materially to get largest average drops, fewest stops per load.

Wherever possible, customers should be educated to order by mail rather than by telephone. In the busy season they often must try several times to get a line, and this causes irritation. But they will order by mail only if this is made particularly convenient.

It is recommended that when the advisory postcard is sent to the customer giving the date to which his present oil should last, this should be a double postcard. One half can be torn off and mailed back at the proper time to order another delivery. The customer will keep this double card handy to watch the indicated consumption date and will thus not have to search for the order card. The re-order card should be "Business Reply" so no postage is needed.

CONCLUSION

Some distributors may feel that the war is too far along to justify changing their methods for any wartime purpose. It is reasonable to expect, however, that fueloil rationing will be continued for two more seasons, since the Armed Forces have recently said that it cannot stop until the total war is ended. When the war does end, there apparently will be about a million and a half barrels a day of petroleum products returned to civilian markets and looking for users—competition will be active. What better way for a distributor to enhance his customer relations than by giving helpful advisory service through the remaining rationed period? Meanwhile, it will make rationing more fair, in addition to getting the utmost from available trucks and manpower.

THE COMMITTEE

Ben Britt, Shell Oil Co., Inc., New York.

F. B. Caldwell, Oil-Heat Institute, Chicago.

T. E. Carson, Sherwood Brothers, Inc., Baltimore.

George Clement, Modern Heat & Fuel Company, Philadelphia.

Dexter Goldthorp, OPA, Washington.

Robert Gray, Heating Publishers, Inc., New York.

Howard Johnston, Sherwood Brothers, Inc., Baltimore.

H. M. Spade, Robison Oil Co., Inc., Hartsdale, N. Y.

Robert K. Thulman, FHA, Washington.

Ration Plan Changes For 1944-45 Season

AS FORECAST IN THE APRIL ISSUE, fueloil rationing methods in the coming season will be little changed from what we now have. This does not indicate lack of thorough study on the part of those responsible for the program—quite the reverse. It reflects the strong pressure put on OPA by both industry men and field forces to let well enough alone, with minor exceptions.

In all, some 108 possible revisions were considered in numerous meetings of Industry Councils, OPA district and regional fueloil representatives, local board representatives and the Rationing Div. staff, but under the strong pressure for "status quo" only a handful stuck. The only revisions of consequence are:

The reapplication form, to be mailed out by boards and mailed back by consumers the same as last year, will ask a little more information. It asks number of persons, whether or not any children under six years of age (previously four years of age) and the number and type of stoves, if it's a space heater user. There is no change in the basic formula for heat or hot water.

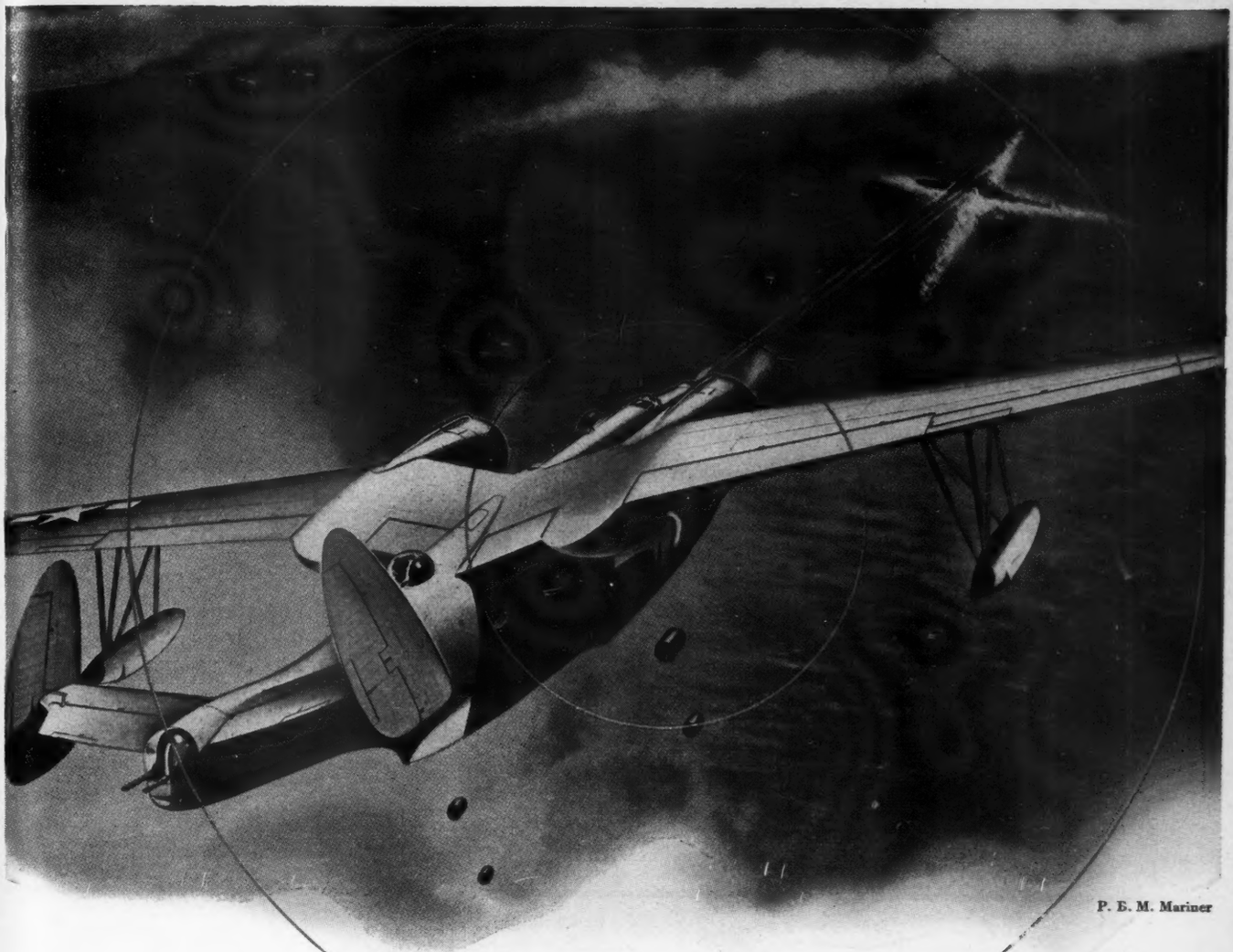
Number of periods will be the same, but it is understood that if by Fall the supply situation seems assured to support par values, periods 2&3 and 4&5 are to be telescoped in the East, as they now are in the Midwest. It is problematical if this will be done, but OPA is all in favor, if at the time they feel that there is no supply risk. The heating season is to start officially September 1, instead of October 1. The present season ends August 31, but current coupons probably will be good until September 30.

The five periods will not be of equal length, for degree-days, as in the past. The first period will have approx. 30% of the season's D-D, the second, third and fourth periods approx. 15% each, and the fifth period approx. 25%. In the first period this will spread the large inventory cushion out further to bring in early the most flagrant cases of overconsumption. Lengthening the last period is to prevent a lot of the troubles the industry and consumers had this season at the end of Period 4—the date is pulled up several days. Each period's coupons will continue to be approximately equal in oil value, so the only change is in dates.

There are to be no expiration dates for coupons—once valid they remain valid until the end of the season. This is to prevent a lot of small drops at period ends. The coupons will be similar in appearance and have the same arrangement on the sheets as last season. One refinement on the coupons is designed to get more uniform tailoring. The Class 5 sheet will have printed on the coupons, progressively, the total ration to be is-

Beginning Validity Dates

	ZONE			
Period	*A1, B1, C1*	*D*	*A2, B2, C2*	*A3, B3, C3*
1	July 1, 1944	July 1, 1944	July 1, 1944	July 1, 1944
2	Dec. 18, 1944	Dec. 18, 1944	Dec. 18, 1944	Dec. 11, 1944
3	Jan. 15, 1945	Dec. 18, 1944	Dec. 18, 1944	Jan. 8, 1945
4	Feb. 5, 1945	Jan. 29, 1945	Feb. 5, 1945	Feb. 5, 1945
5	Mar. 1, 1945	Jan. 29, 1945	Feb. 5, 1945	Mar. 5, 1945



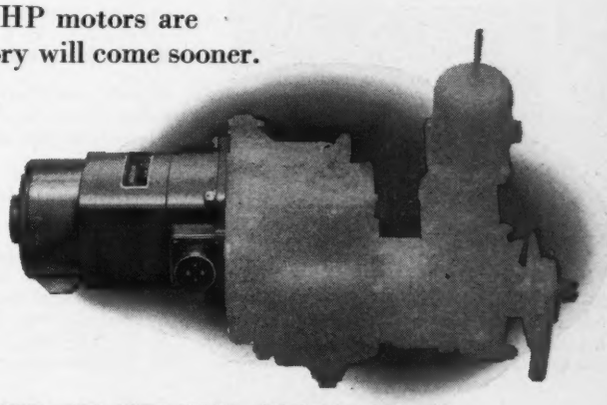
P. E. M. Mariner

TAKING THE "SLAM" OUT OF BOMB BAY DOORS

Bomb bay doors must open quickly and smoothly without jarring . . . *and close without slamming.* Holtzer-Cabot designed a special gear motor to meet these performance requirements which is, today, helping bombardiers blast the enemy.

Many other Holtzer-Cabot special fractional HP motors are providing power for war products so that victory will come sooner.

Our motor development engineers, backed by over 50 years of experience in electric motor design, will discuss your post-war motor problems with you. However, war needs come first and our manufacturing facilities, today, must be strictly limited to building special motors for winning the war as quickly as possible.



SPECIAL MOTORS DESIGNED TO FIT THE APPLICATION

The HOLTZER-CABOT ELECTRIC COMPANY

Designers and Builders of Special Fractional HP Motors and Electrical Apparatus

125 Amory Street, Boston 19, Mass.; Chicago, Illinois; New York, N. Y.; Philadelphia, Pa.

fueloil & oil heat

sued. The sheet is printed for 2,600 gallons at par value, including 200 gallons of change on the left. The coupons on the right will be numbered in 50-gallon jumps up to 2,600. If the ration to be issued is 1,750 gallons, the board will tear off every coupon numbered above that amount. If the tailoring is uneven, those for the earlier periods will be left on, those for the later periods tailored off.

Boards are to be urged—not forced—to recalculate space heater rations. In many areas space heater rations have been too generous, which is the worst place for generosity, with kerosene the relatively scarcest product. Boards now have authority to give the applicant less than the formula amount for space heaters, using their best judgment, but not more than the formula.

If a consumer has had a change in floor area occupied since his original application, or if he can prove actual error in the area originally stated, he may file a new 1100R for correction. Private dwellings remodeled to boarding houses or apartments may reapply on 1100R and get more oil if this figures up to more than their present 1101.

The timing of reissuance calls for the start of mailing out coupons July 1; this date can apparently be met if consumers get their applications in promptly. The boards are to start now addressing envelopes, two for each present ration holder for heat and hot water. The first is for mailing the application. The application blanks are now on the press and are to reach all boards between June 1 and 15. The second envelope is for mailing the coupons. As the boards now prepare this second envelope, they write under the flap the amount of the heat ration only. Then when they get in the application they will figure hot water based on the stated number of persons and months, add this, and also add the children's allowance if any. There is a box on the new application form for the board worker to list and add these three amounts. Thus, the coupon mailing can be very rapid after the application comes in.

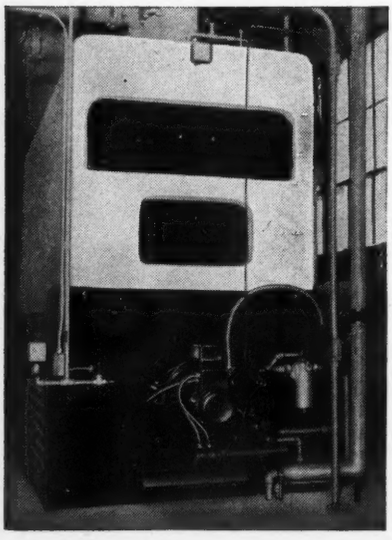
During May, all fueloil panel members of boards are to be shown the new program in an educational film, and at that time their responsibilities to the program and to the public will be re-emphasized.

OPA has prepared an attractive 6-page educational folder to be given each consumer with his ration coupons. It is called a "Calendar and Delivery Record" and is designed to show the consumer how to budget his ration by deliveries, dates, etc. Simpler and more direct than last season's booklet, it is timed to reach boards with the coupons, so there can be no question about sending it out in the coupon envelope.

If fueloil distributors want to help speed up the coupon issuance, they might well prepare a message to their customers, to be mailed about June 15, urging them to send in their applications without delay.

◈

John Neukom returned to the Fuel Rationing Div., OPA, May 1 as Deputy Director. He had previously been with the Division as Chief of the Fuel Oil Rationing Branch in the development months of the program, returning a year ago to his civilian work as an executive of McKinsey, Kearney & Co., Chicago industrial management engineers.



Florida Fuel Oil, Inc., of Miami, sold two fully automatic Johnson Burners like this to Pan American Airways for use in their new "million dollar" Land Plane Base and Hangar in Miami.

Not a single Johnson Dealer has been "ORPHANED" by the war!

SOME, it's true, have gone into war work. Others have quit to join the army. But not a one has been left with an "orphan" line on his hands . . . unable to get service, or parts or support from the factory.

To the utmost limit permitted by WPB regulations, we have taken care of Johnson Dealers. We have helped them get and fill war contracts. We have given them help on engineering problems. We have filled out and filed applications for them. And did all this gladly because we believe in teamwork.

As our contribution to winning the war, we were asked not to "convert" but to go on doing the work we know best . . . the *building of fine oil burners* for Uncle Sam and essential industries.

For our dealers, that fact is important. It means that our 41-year-old organization of skilled craftsmen has not been broken up. Today they are producing as they never produced before, at the jobs they can do best.

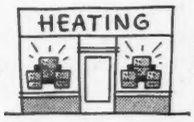
When the war is over, the swing back to civilian products will cause no delay, no halting, no loss of momentum. On that happy day, Johnson dealerships will be even more valuable than in the past. In a few localities, they will be available. If you are interested, write us about your qualifications. Be specific please. We will do the same. S. T. JOHNSON CO., 940 Arlington Ave., Oakland 8, Calif. and 401 No. Broad St., Philadelphia 8, Pa.

S. T. JOHNSON CO.

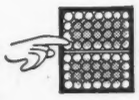
41 years of engineering and building fine Oil Burning Equipment

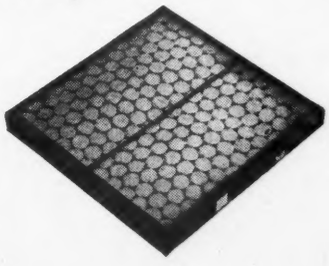
A plan for extra Spring and Summer profits

The 1944 Spring Promotion really helps

step up your business. 

It makes a hot prospect out of every owner of a forced-warm-air furnace in your community. Here's the idea:

Right now is house-cleaning time. And one of the most logical places to start this job is with the furnace. It's dollars to doughnuts, furnace filters  are now clogged with dust and grime . . . and that's where you come in with brand-new Dust-Stops.*



Free 1944 Spring Promotion Heads Business Your Way

DUST-STOPS offer you the biggest and best dealer helps in the filter business.

Your Spring Promotion includes free attractive window and counter displays . . . colorful envelope stuffers and mailing cards imprinted with your name and address . . . newspaper ads in complete mat form . . . radio spot announcement scripts . . . furnace labels. Also a free catalogue of filter sizes to enable you to fill orders quickly over the phone or counter.

And Remember This—

Dust-Stops are no strangers to many of your customers. The advantages of changing Dust-Stops regularly are told to more than 12,000,000 people—all during the heating season—through the pages of *Life, Saturday Evening Post, House Beautiful, Better Homes and Gardens,* and *American Home.*

Putting it Briefly—

The business is there . . . the profits are good. So, if you are not already handling Dust-Stops, why not write for the 1944 Spring Promotion to your nearest Dust-Stop supplier TODAY? *Owens-Corning Fiberglas Corporation, Toledo 1, Ohio. Fiberglas Canada, Ltd., Oshawa, Ontario.*

FIBERGLAS* DUSTOP AIR FILTERS

*T. M. Reg. U.S. Pat. Off.

fueloil & oil heat

R. F. C. Burner Stocks for Sale

UNDER THE MURRAY-PATMAN ACT, the Reconstruction Finance Corp. was authorized to purchase from dealers frozen stocks of oilburners and units. Now that burners can be sold for replacements, and are being sold in numbers, R. F. C. is finding considerable demand for its burner stocks.

Stock lists that follow are corrected to April 15. The R. F. C. office holding title to the burners is shown; burners are stored in the general vicinity of that branch office. By writing Reconstruction Finance Corp. at the branch address shown, you can get prices and exact location of the burners or units.

Boston

40 Broad Street

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
29	Master Kraft	T	...
5	Master Kraft	U	...
66	General Electric	DB-20	...
3	General Electric	DB-26	...
4	Silent Glow Burners	Rotary B	...
1	Delco	A-12	...
1	Delco	B	...

OILBURNING FURNACES

3	Airtemp Winter Air	0-7	...
4	Airtemp Winter Air	0-70	...
39	Airtemp Winter Air	0-10	...
2	Westinghouse Air Unit Oak	....	...
8	Airtemp Winter Air	0-16	...
16	Airtemp Winter Air	0-13	...
3	Lennox Furnaces	FQ115	...
8	Lennox Furnace Units	FQ80	...
3	Quaker Burnoil	210B	...
2	Quaker Burnoil	230B	...
3	Quaker Burnoil	220B	...
2	Airtemp Vaporizing	EO-6	...
5	Airtemp Vaporizing	EO-8	...
1	Duo Therm	322-2	...
12	Duo Therm	850-2	...
1	General Electric	LB-32	...
1	General Electric	LB-34	...

OILBURNING BOILERS

21	Penn Boiler Burners	S-18	..
2	Penn Boiler Burners	S-15	...
25	Penn Boiler Burners	S-16	...
2	Penn Boiler Burners	S-23	...
4	Penn Boiler Burners	S-26	...
2	Penn Boiler Burners	W-16	...
3	Penn Boiler Burners	W-18	...
3	Airtemp Steam Boilers	OS-20	...
2	Airtemp Water Boilers	OW-40	...
4	Airtemp Water Boilers	OW-20	...
2	Airtemp Boilers, Steam	SO-3	...
3	Airtemp Boilers, Water	SO4	...
2	Airtemp Boilers Water	WO-4	...
2	Airtemp Boilers Steam	WO-4	...
2	Airtemp Boilers Steam	SO-T	...
2	Airtemp Boilers Steam	SO4T	...
2	York Vertical Boiler (Model C)	BS500	...
9	York Boiler Units	BS-320	...
1	York Radi-aire unit	CB-300	...
3	General Electric	LA-20	...
13	General Electric	LA-22	...
1	General Electric	LA-32	...
1	General Electric	LA-34	...
1	General Electric	LA-42	...
2	General Electric	LA-44	...
1	General Electric	LA-54	...
2	Delco	DS	...

New York

33 Liberty Street

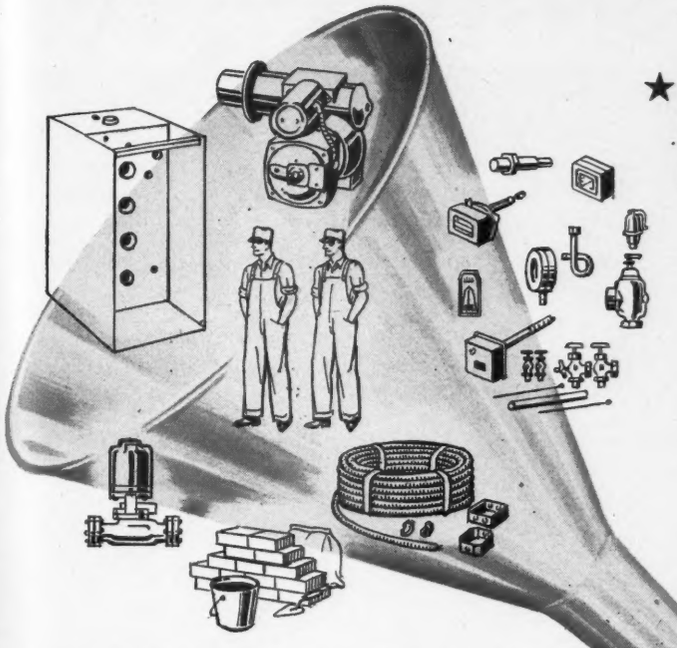
CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
5	Master Kraft	K	700
14	Master Kraft	T	420
16	Master Kraft	TE	420
11	Master Kraft	U	420

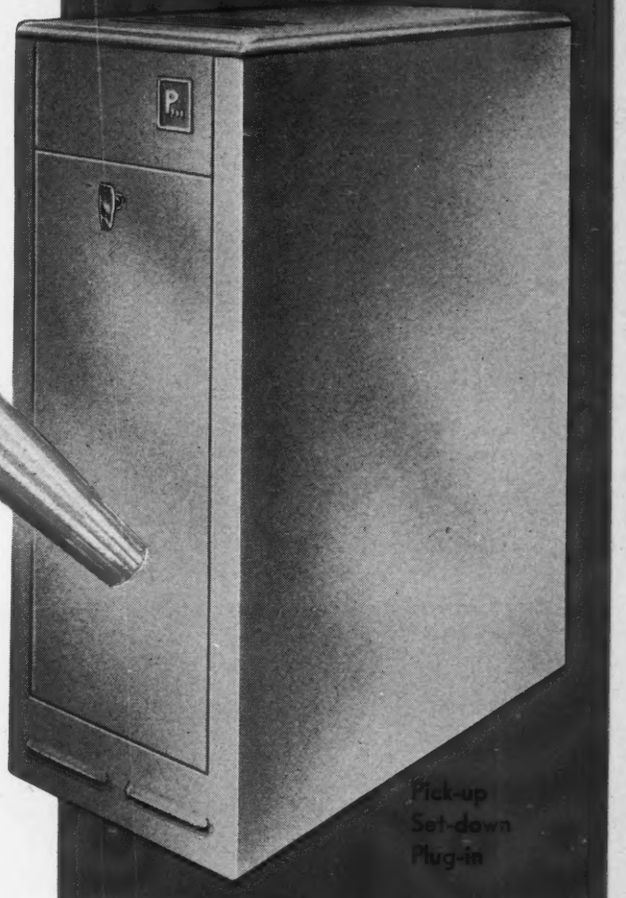
OILBURNING FURNACES

1	Delco	DB-3S	110
2	Delco	DB-3W	110
1	Delco	DB-4A	160
4	Delco	DB-4S	160
1	Delco	DB-4W	160

PACKAGED for PROFIT by PENN



★PENN Completely Prefabricated Heating UNITS Save 95% of Installation Work



- LOW FIRST COST WILTS COMPETITION
- 100% SELF CONTAINED . . . QUICKLY SET UP
- FEWER AND EASIER SERVICE CALLS
- ATTRACTIVE APPEARANCE . . . SALES APPEAL
- FACTORY PREFABRICATED...A PACKAGED PRODUCT

★*Factory assembly line fabrication of boiler, burner, combustion chamber, controls and wiring reduces installation cost 95% and removes guesswork 100%.*

Wide awake dealers know that post-war demands for new building and modernization will "turn on the heat" when it comes to competition. Penn Dealers will be a long jump ahead of the field . . . because Penn's self-selling features stand out clear, genuine and impressive.

Packaged by Penn means built from the ground up for dealer profits as well as owner benefit. Penn Dealers spend a minimum of time and labor on installation, have fewer, more easily satisfied service calls.

When war needs are satisfied Penn will again build the finest, low cost packaged heat. Penn invites forward looking dealers to get the complete story of Profits by Penn. Write today.

Pick-up
Set-down
Plug-in

Crated Penn Packaged Units Can Be Carried Easily Through Any Ordinary Doorway

To Install . . . Just Make Your Connections, Plug In and Turn the Switch

PACKAGED by PENN

- BOILER BURNER UNITS
- AIR CONDITIONER UNITS
- PENNGUN WATER HEATERS
- HYDRO-AIRE (SPLIT SYSTEMS)

PENN

BOILER and BURNER MANUFACTURING CORP.
LANCASTER, PENNA.

fueloil & oil heat

New York, *Continued*

OILBURNING FURNACES

2	Delco	DSS	95
200	Fluid Heat	DSW	95
1	Lennox Aire Flo.	RU-7	70
4	Lennox Aire Flo.	FQ-116	145
2	Delco	FQ-81	100
1	Master Kraft	75-S	...
1	Master Kraft	C-110	110
1	Chrysler	O-10	130
3	Carrier	5803	80
1	Chrysler	O—13	165
1	Chrysler	O—10	130
1	Chrysler	O—70	90
1	Chrysler	O—70	90
1	Carrier	32H	90
6	Duo Therm	815-2	75
4	Duo Therm	715-2	50
3	Monogram	....	140
6	Monogram	....	180
1	Monogram	103	90
1	Williams Oil-O-Matic	KI50	219
2	York	....	...

OILBURNING FURNACES AND BOILERS

1	Aldrich	150W	226
13	Elco	....	82
54	General Electric	LA22	100
8	General Electric	LA32	140
1	General Electric	LA44	350
11	General Electric	LA54	450
2	General Electric	LA20	75
4	General Electric	LA22	100
2	General Electric	LA32	140
1	General Electric	LA34	200
2	General Electric	LA42	275
1	Master Kraft	35W	560
1	Master Kraft	55W	880
5	Master Kraft	C80	80
5	Viking	801	50
14	Viking	803	52
10	Viking	8801M	50
78	Duo Therm	8502	75
10	Heating Specialty Furnace	HB65	65
1	Heating Specialty Furnace	LB100	100
5	Heating Specialty Furnace	LB70	70
1	Mor Mac	175	110
1	Mueller	553	100
1	Mueller	579	225
6	Norge	120	120
11	Norge	O-90	90
2	Norge	OB60-T	60
3	Norge	Under floor	60
2	Norge	OE80	80

OILBURNING WATER HEATERS

3	Bock	20E	...

Philadelphia

1528 Walnut Street

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
21	Delco	A	216
31	Delco	B	112
1	General Electric	DB20	423
1	General Electric	LA32	140
11	Master Kraft	T	420
1	Master Kraft	TE	350
13	Master Kraft	U	420
44	Miller	OG80	130
25	Quiet Heet	QHBA	195
111	Quiet Heet	QHC	290
14	Williams Oil-O-Matic	HP3A	438

Richmond

Richmond Trust Building

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
13	ABC	H1	120
5	ABC	W2	144
12	Master Kraft	T	250
26	Master Kraft	U	125

OILBURNING FURNACES AND BOILERS

55	Bettendorf	KF2G4	80
1	Dowagic	OC80	100
4	Duo Therm	318	84
7	Duo Therm	7502	50

Charlotte

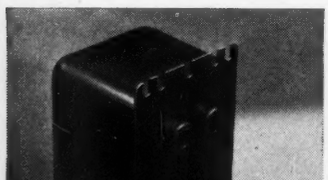
109 West Third Street

OILBURNING FURNACES

No.	Make	Model	Btu (Thous)
1	Delco	DA0	110
4	G-E	21LB22A1	97
1	G-E	21LA32A15	150
1	Hoffman	HU70	75
1	Lennox	FQ-175-2	150
1	H. C. Little	105-C-1	68
1	Master Kraft	U	125
1	Norge	OC-60	60
4	Round Oak	60BD	52
7	Round Oak	XB100	100
2	Round Oak	XB200	126

OILBURNING WATER HEATERS

1	Viking	20-A08218	...



G-E IGNITION TRANSFORMERS provide an *unfailing* high-voltage arc—even igniting heavy oil at freezing temperatures as low as minus 10 C when the line voltage is only 70 per cent of normal. They also deliver ample current to overcome such conditions as cold spark points, and oil film on these points. Installation of the units is easy. Note some of the mechanical features for mounting, shown above.

GET YOUR **ANSWER BOOK** ON IGNITION TRANSFORMERS

Contains Helpful Hints for Designers of Postwar Oil Burners

★ Suggestions for eliminating radio interference
★ How to eliminate destructive, high-voltage surges from oil burners
★ How to balance high-voltage circuits
★ Recommended air velocities and electrode spacings for various transformer ratings
★ Conditions to avoid to assure proper transformer and oil-burner operation

GENERAL ELECTRIC

General Electric Company, Section B403-61
Schenectady 5, N.Y.

Please send me a copy of your application booklet (GET-1004) on ignition transformers for oil burners.

Name.....

Company.....

Address.....

.....

5205

Climate... enemy or friend

"DL" Products Help Make The Difference

Climate is a friend if it helps *us*, or hinders the enemy. Climate is an enemy if the reverse is true. It has been a factor in every war—an exceptionally powerful factor in this war. Almost every extreme and rigor is encountered in world-wide operations, affecting every military element from troop movement to photo reconnaissance.

Thousands of "DL" Float Valves have been furnished to the armed forces for use on space heaters, furnaces, tent heaters, water heaters, etc., to help nullify climate's handicaps.

"DL" Float Valves are much in demand by manufacturers of heating equipment, because of their simplicity, ease of cleaning and servicing—important advantages to troops in the field. "Automatic Temperature Compensation", an exclusive "DL" feature, makes their operation extremely reliable by automatically maintaining uniform oil flow regardless of temperature.

It is not too soon to be thinking about the line of heaters you will sell in postwar competition after the war. Be sure to select one equipped with "DL" Float Valves which have already won an enviable reputation.

DETROIT LUBRICATOR COMPANY *General Offices:* **DETROIT 8, MICHIGAN**

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators

Jacksonville

Western Union Building

No.	Make	Model	Btu (Thous)
1	Garwood	501	...

Detroit

607 Shelby Street

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
1	Delco	BXL	...
6	Delco	A	...
2	Lennox Conversion	JUMBO	...
2	Silent Sioux	FB14	132

OILBURNING FURNACES AND BOILERS

1	American	1102	...
1	American	AFCO-90	...
1	Capital Aire	206	90
1	Chandler	080D	80
1	Delco	DAC	110
1	Fluid Heat	R12	120
1	Gillen	L150	150
7	International	F5	...
21	Lennox Aire Flo	FQ116	115
1	Lennox Aire Flo	FQ81	80
12	Lennox Aire Flo	FQH90	90
2	Norge	090	90
2	Norge	OA63	70
1	Norge	OA63NLT	65
1	Norge	OB60T	60
1	Norge	OD70	70
1	Norge	OE80	80
1	Silent Sioux	ACF60	60
1	Silent Sioux	ACF85	85
1	Silent Sioux	ACF85	85
1	York	320	135
1	Quick Heat	A-65-UB	...
1	York	1129	...

OILBURNING WATER HEATERS

5	International	SW1	...
1	Super Flame	4109CK	30
7	Super Flame	4016D	...

Cleveland

Federal Seserve Bank Building

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
2	Chrysler	B9L	187

OILBURNING FURNACES

1	Chrysler Furnace	EO6	80
18	Chrysler Furnace	EO6	80
1	Frogil	4058	85
1	Frogil	4069	102
1	Mor Mac	173	85
1	Chrysler Airtemp	07	90
4	Chrysler Airtemp	010	130
1	Conco	08100	119

Chicago

208 South LaSalle Street

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
1	ABC	H-1	...
2	American	G217	...
6	Chrysler	B1014	187
2	Chrysler	B9L	187
2	Fluid Heat	SA7	...
6	Fluid Heat	SM6	...
4	Fluid Heat	SM7	...
3	Quiet May	F2	245
7	Toridheet	BS60100	180
1	Toridheet	CS60100	950
11	Williams Oil-O-Matic	HP1	...
2	Williams Oil-O-Matic	K150	...
1	Williams Oil-O-Matic	K45	...

OILBURNING FURNACES AND BOILERS

6	American	OM90	90
9	Bard	80EP	80
1	Bard	C1	120
2	Chrysler Furnace	O-10	130
2	Chrysler Furnace	O-13	165
3	Chrysler Furnace	O-7	90
6	Chrysler Furnace	O-70	90
2	Chrysler Furnace	EO6	80
1	Chrysler Furnace	EO8	56
1	Chrysler Furnace	WO4	228
3	Delco	DA0	85
3	Delco	DR00	75
1	Delco	DB3W	110
1	Delco	DB4W	160
26	Duo Therm	322	108
7	Duo Therm	422	104
80	Duo Therm	850	75
1	Duo Therm	850 2	75
2	Fluid Heat	WB2	72
1	Fluid Heat	WB4W	100
3	Green Colonial	139FA	112
1	Kozyair	110	80
6	Lennox Aire Flo	FQ116	115
6	Lennox Aire Flo	FQ81	80
1	Mayflower	F2	125
2	Monogram	100	90
5	Monogram	102	75
18	Monogram	125	90
3	Monogram	150	120
19	Monogram	75	75
1	Norge	OA63L	60
1	Premier	RX5	76
12	Quaker	210B	70

HOW AMERICAN INDUSTRY PRODUCES MORE, FASTER, BETTER WITH BOWSER EXACT LIQUID CONTROL

SAVED—A FLOOD OF PRECIOUS SOLVENT... *and costs cut to one-tenth*

A Cleveland paint maker, irked at seeing much precious solvent wasted with dirty paint and residue (reclamation processes then used were prohibitively costly), looked for a practical solution.

A Bowser Still was installed. With it, thousands of gallons of solvents were reclaimed at a cost of only a few cents per gallon, about one-tenth of the old cost. At that rate of saving, the Still paid for itself in its first 150 hours of operation.

That's typical of Bowser Exact Liquid Control.

And here's an equally outstanding Bowser development in gasoline marketing... PETINCO!

With PETINCO, you fill the station tank... no more small dumps, emergency trips, wasted mileage. But the station operator still buys only a few hundred gallons as he is able... by inserting PETINCO tokens, bought from you, in the PETINCO unit of his standard electric meter pump. Each token permits him to draw 50 gallons of the gas stored in his tank.

PETINCO saves on delivery costs, investment in trucks, bulk plant costs, credit losses, accounting costs. Write for details.

This is important, too—wherever you're located, there's a complete Bowser service organization close to you. BOWSER, INC., Fort Wayne 5, Ind.

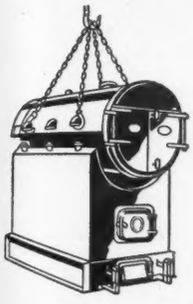
BUY WAR BONDS

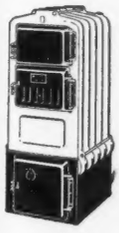
THE NAME THAT MEANS **EXACT CONTROL** *OF LIQUIDS*

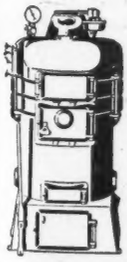
U. S. BULLETIN ★ MAY

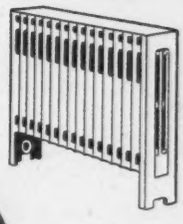
SIGN OF SERVICE

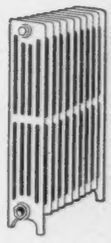
"U. S. Radiant Warmth" stands for dependable heating equipment that has been manufactured and delivered without interruption to the limit of our ability under war conditions

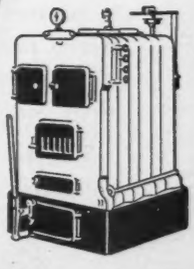












U S
RADIANT WARMTH

UNITED STATES RADIATOR CORPORATION
AND
PACIFIC STEEL BOILER DIVISION
Detroit, Michigan · Branches and Sales Offices in Principal Cities
Manufacturing Plants At:
Bristol, Pa. · Detroit, Mich. · Dunkirk, N. Y. · Edwardsville, Ill. · Geneva, N. Y. · Waukegan, Ill. · W. Newton, Pa.

Member The Institute of Boiler and Radiator Manufacturers • Member of Steel Heating Boiler Institute

fuel oil & oil heat

Chicago, *Continued*

8 Quaker	220C	75
1 Round Oak	XB100	100
2 Rudy	80AC	180
1 Rudy	80OAC	108
1 Rudy	S100R01	108
1 Rudy	S100R02	129
1 Rudy	S100R0	100
2 Rudy	S80R02	81
2 Silent Sioux	ACF60	60
4 Silent Sioux	ACF85	85
8 Toridheet	100R	100
1 Toridheet	125R	125
8 Toridheet	85R	85
1 Venko	E2	108
4 Viking	722	72
7 Viking	V55A	55
1 Gilco	C60	65

OILBURNING WATER HEATERS

1	Chrysler	OWH8	...

Kansas City

Federal Reserve Bank Building

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
3	Chrysler	B10	277
2	Chrysler	B9	277
1	Lennox	LC1-1	...
2	Heil	X1	136

OILBURNING FURNACES AND BOILERS

1	Chrysler Furnace	E08	60
1	Chrysler Furnace	070	70
1	International	R7	98

End THIS Post-War Worry NOW!

Your chief post-war problem will be, not lack of market, but how to get enough equipment to supply that market *quickly*.

By eliminating that problem now you can make your post-war business post-*worry*, too.

Right now, Herco offers you a plan for post-war selling that safeguards you on two important points: It *assures you your full share of the new, improved Herco products* which will be manufactured as soon as we convert from war to civilian production. And it *gives you Herco sales rights in your territory.*

This plan is designed for your protection and involves no obligation. Write Herco about it today.

HERCO OIL BURNER CORP.
Lancaster, Penna.

Service in Wartime Sales in Peacetime

HERCO
The Oil-Thrifty
OIL BURNER

Minneapolis

McKnight Building

CONVERSION OILBURNERS

No.	Make	Model	Btu (Thous)
1	Delco	AO	...
5	Delco	....	...
1	Green Colonial	G4010	...
1	Round Oak	OB100	210
1	Rudy	R1	...
1	Timken	F	125
1	Timken	H	225

OILBURNING FURNACES

1	Aire Flo Lennox	FQ116	115
1	Aire Flo Lennox	FQ175	135
1	Aire Flo Lennox	FQ81	80
2	Chrysler Furnace	EO6	60
1	Chrysler Furnace	EO8	60
1	Chrysler Furnace	O10	...
2	Chrysler Furnace	O7	90
1	Delco	DAO	110
1	General	80A	80
1	Green Colonial	139	112
2	Lennox Aire Flo	139FA	110
3	Lennox Aire Flo	FQ116	115
2	Mor Mac	FQ81	80
4	Mor Mac	14 2	67
4	Mor Mac	17 3	85
4	Mor Mac	17 5	110
3	Mueller	17 7	135
5	Norge	553	100
11	Norge	120A	120
4	Norge	O120A	120
1	Norge	O90	90
1	Norge	OA63NLT	70
5	Norge	OA63T	70
4	Norge	OB60	65
7	Norge	OB60T	65
1	Norge	OD70	70
14	Premier	PX75	75
14	Premier	RX5	68
1	Quality	120A	120
2	Rudy	S100RO1	100
2	Stainless and Steel	151	85
1	Stainless and Steel	183	109
1	Superfex	81	53
1	Superfex	82	70
1	Unique	B1	121
8	Waterman Waterbury	231610	75
2	Waterman Waterbury	232012	120
1	Waterman Waterbury	W231610	75
1	Williams Oil-O-Matic	K15	150
2	Green Colonial	139FA	110
2	Green Colonial	139	112
3	Rudico	S-100-RO-1100	
3	Weir Oil-Cond.	A100-M	140
1	Williams Oil-O-Matic	#15-W	150
1	CAO-Oil Cond.	183CAO	109
2	CAO-Oil Cond.	151CAO	85
2	Chrysler	EO6	60
1	Chrysler	EO8	60
1	Lennox Aire Flo.	FQ-81	80
3	Lennox Aire Flo.	FQ-116	115
3	Lennox Aire Flo.	FQ-81	80
1	Lennox Aire Flo.	FQ-175	135
2	Mor-Mac AC without Burner	017-5	110
3	Mor-Mac AC without Burner	017-7	135

OILBURNING BOILERS

2	Delco Water Boiler	DSW	95

OILBURNING WATER HEATERS

1	Chrysler	OH30	...
1	Delco	DSW	95

Helena

P. O. Box 177

OILBURNING FURNACES AND BOILERS

No.	Make	Model	Btu (Thous)
1	Bethlehem	36	156
1	Conco	M-1	92
3	Norge	8100	119
11	Norge	O-120	120
3	Norge	O-A63	70
2	Norge	OD70	70
1	Norge	OE80	80
8	Norge	O-90	90
6	Norge	O-90	90

Seattle

410 Dexter Horton Building

OILBURNING FURNACES AND BOILERS

No.	Make	Model	Btu (Thous)
22	Norge	OA63	63
55	Norge	OA63L	63
5	Norge	OB60T	60
2	Norge	OC60	60
67	Norge	OD70	70

OILBURNING WATER HEATERS

1	Norge	WO41B	130

Portland

Pittock Block

OILBURNING FURNACES AND BOILERS

No.	Make	Model	Btu (Thous)
11	Norge	OA63	70
15	Norge	OA63L	70
7	Norge	OB60	65
2	Norge	OB60T	65

Wholesalers Discuss Reduction of Costs

CENTRAL SUPPLY ASSOCIATION, Chicago, held a 2-day meeting April 27-28, at which 500 wholesalers and manufacturers discussed problems of reducing distribution cost and improving service. Recommendations of O. Fred Rost, specialist, included (a) reducing the number of lines handled to permit more specialization, (b) reduction of territories to proper size, and (c) better training of salesmen. Further discussion of better distribution was held by a panel which included R. E. Moore, Bell & Gossett; A. H. Lockrae, M-H; H. P. Mueller, Mueller Furnace; C. D. Leiter, F. E. Myers; C. A. Olsen, Olsen Mfg.; R. P. Henderson, U. S. Radiator; Martin Weil, Weil-McLain; and H. E. Carloss, Deming Co. W. J. Nixon, realtor, warned against "regimented" building by government and "fantasy" houses. The second day was devoted to discussions of sales training. W. A. Reichle, Saginaw, Mich., is president, and E. B. Hauser, Chicago, is secretary of the Association.

May Install More Tanks If Enough Mileage Saving

PROMPTED BY THE NECESSITY of relieving greatly overburdened truck transportation facilities, the Petroleum Administration for War issued on April 10 an amendment to PAO-12 to permit installation of additional storage capacity under stated conditions.

Installation of additional tankage at any location—either bulk plant or consumer premises—will be permitted when a saving in mileage of 25 percent or more will be effected by tank trucks supplying that location.

This should be particularly helpful in supplying certain outlying customers. The installation of an additional 275-gallon tank could in many such cases reduce delivery mileage more than 25 percent.

Thomas A. Hughes has been appointed advertising manager for airconditioning of Westinghouse Electric. He was formerly assistant advertising manager of Underwood Elliott Fisher.

EXCLUSIVE DISTRIBUTORS Now Being Appointed

One of the most valuable oil burner franchises in the industry is available in certain territories.

Ever-increasing PROGRESS for nearly 25 years . . . burners with a reputation for a *minimum* of maintenance service . . . over 60,000 satisfied users . . . close factory cooperation . . . a COMPLETE LINE that meets every situation . . . these are the *advantages* every Rexoil distributor will enjoy again, when production is resumed.

Perhaps YOUR territory is still open. Write us.

You're RIGHT . . . With

REXOIL

REIF-REXOIL, INC.
37-41 CARROLL STREET
BUFFALO 3, N. Y.

War Has Made the Public

"FUEL SAVING" Conscious...

...assuring BIG Demand for PARLOR FURNACES equipped with

Allen's NEW

"LOW-PILOT" Oil Burner!

There's "something new" in pot type oil burners. It's the amazingly convenient, economical ALLEN "Low-Pilot" unit—ready for production when WPB says "O. K."

This sensational new Burner, designed and perfected by ALLEN engineers, sets an entirely new standard in oil burning economy, its fuel-saving resulting from perfect combustion. The Burner will be available in three sizes—the 10" Burner consuming only 1/33 *of a gallon of fuel per hour* when operating on "low pilot."

ALLEN Parlor Furnaces equipped with this revolutionary Burner are sure to be in big demand, affording excellent profit opportunities for Dealers holding the ALLEN Franchise. Line up now;—for details, write Dept. O.

ALLEN "TWIN-EIGHT" CABINET OIL HEATER

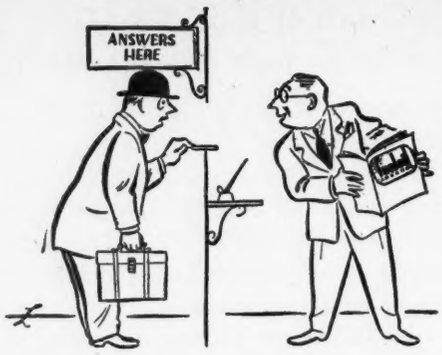
Two heaters in one cabinet, individually operated. Both burners give maximum heat; one unit burning saves fuel in mild weather. Allen's Burners give more heat, require less draft, cut heating cost by burning oil more efficiently. Economically priced.

• ALLEN •

MANUFACTURING COMPANY, INC.

NASHVILLE, TENNESSEE

1867 *Pioneer Stove Builders* **1944**



Reader's Problems

Q. A local burner installation has been tried on two kinds of fuel oil, a light oil and a decidedly heavier oil, and it performs dependably on either. Using the lighter oil, the burner can be adjusted for considerably higher CO_2 than using the heavier oil. Isn't this an argument in favor of buying the lighter oil?

H.M., *Detroit*

A. If the two oils are the same price per gallon, from what you say the lighter oil should be purchased because more heat per gallon will be obtained from it. This holds true even though the lighter oil probably has a few less Btu per gallon than the heavy oil. If on the other hand the heavier oil costs less per gallon than the light oil, facts and figures must be used to determine which of the two oils gives lower fuel bills. The higher cost of the lighter oil may be more than offset by the higher efficiency at which it can be used, or the low price of the heavier oil may make its use advisable even though this oil can be used only at somewhat reduced efficiency. If the burner uses considerable oil a year and therefore a good deal of money will be saved by proper selection of the oil, a good knowledge of oil burners, fuel oils, and combustion engineering is needed to bring the correct answer to the problem.

◈

Q. Is it necessary to have an oil burner fitted with a 1/6 horsepower motor connected to its own set of fuses? Or may the burner obtain current from fuses which also connect to light circuits?

S.E.O., *Philadelphia*

A. According to the National Electrical Code of the National Board of Fire Underwriters, the oil burner may be connected to fuses which also provide current for lights. However, the fuse circuit should not be overloaded. In the past many equipment dealers have provided separate fuses for the burners they installed so that the blowing of light circuit fuses would not stop the oil burner.

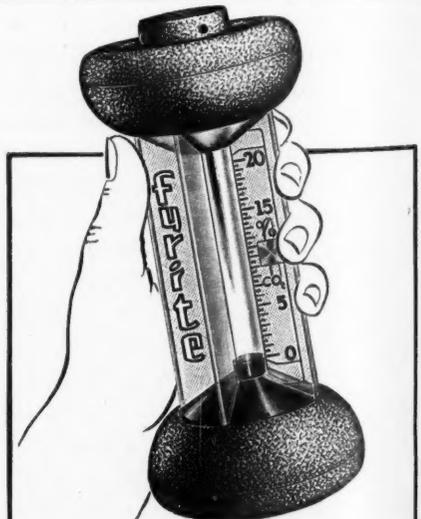
◈

Q. We have been using crankcase drainings in the oil burner used to heat a six family apartment house. We are advised now that this practice is unsafe and should be discontinued. Aren't crankcase drainings commonly used for heating? Can you name any good reasons for not making good use of them in this way when otherwise, during a fuel shortage, the heat in them would be wasted?

R.B., *Bronx, N. Y.*

A. Two main objections commonly are cited against the use of crankcase oil in automatic oil burners built for Nos. 2 or 3 fuel oils. First, crankcase oil has a high flash point because it contains a certain percentage of the "heavy ends" of gasoline; in event of boiler room leaks of the oil pipe lines, careless measuring of the oil in the storage tank, or certain burner disorders, a fire hazard results from using the crankcase drainings. Second, the crankcase drainings may contain impurities that will clog the oil strainers of the burner, result in pump trouble or automatic valve trouble, or give nozzle plugging.

You may be able to get around the sec-



The CO_2 ANALYZER

That Simplifies Combustion Tests

Companion Draft Gauge and Mercury Thermometer also available.

Bacharach Industrial Instrument Co.

7000 Bennett Street • Pittsburgh, Pa.

ond objection by permitting the crankcase drainings to settle in an auxiliary tank before drawing off the upper parts and putting them in the fuel oil tank, and by filtering them thoroughly before they reach the oil burner. However, when an issue is made of the matter you will find, we believe, that those who are concerned with safety in the use of oil burners will oppose relentlessly the use of crankcase drainings in this oil burner.

◈

Q. Some of the other burner dealers in our section are selling considerable amounts of boiler water chemicals. We have never thought that they do much good, except for one application when the boiler is first installed. Can you tell us anything specific about this?

A. There is a definite relation between the condition of the water in a steam heating boiler and the general over-all operating efficiency of the plant.

A boiler with clean water has a faster heat pick-up, uses less fuel, and facilitates the dependable operation of safety devices.

Water in a boiler may become dirty from a number of causes such as organic matter in water, rust and scale, dissolved solids caused by intermittent boiling, and oil which finds its way into the water.

Dirty or greasy boiler water will not boil up properly to make what is known as dry steam. The oil forms a blanket on top of the boiler water through which the steam must pass. Often the water has to get much hotter than boiling before the steam can break through the oily film.

The conditions, known as foaming and surging vary with the condition of the boiler water. Dirty water may also cause priming of the boiler which means that water leaves the boiler to the extent of lowering the water line with consequent danger of cracking boiler sections, if it is a cast iron boiler; or warping tubes or buckling plates, if it is a steel boiler.

On steam heating boilers safeguarded with low water cut-offs or automatic boiler water feeders, when boiler water is too dirty there is always danger that some floating solids may lodge under the seats of these pieces of apparatus.

Dry boilers or flooded boilers can be the result of this interruption in the operation of safety appliances. More serious

BLUEPRINTS FOR YOUR HOUSE *of* TOMORROW

YOU MAY HAVE TELEVISED TELEPHONES

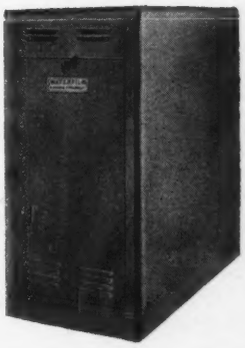
Imagine, actually seeing the person you are telephoning to! Post-war television improvements may make this dream a reality.

BUT –

Your Heating Plant will be KOVEN WATERFILM

The marvels of modern invention may make tomorrow's home a "Push-Button" paradise but in the future, as well as today, a KOVEN WATERFILM BOILER will still offer the best assurance of heating comfort.

The patented construction of the KOVEN WATERFILM BOILER assures you of quick heat... even room temperature... plenty of domestic hot water... and greater operating economy. This fast steaming boiler is made especially for automatic firing for oil, stoker or gas and is available in various sizes. Its compact size and modern design make the KOVEN WATERFILM BOILER popular for both home and industrial use. The sectional series for apartment house or industrial plants can be taken through a 2 foot door thus eliminating rigging and alteration costs. Call or write KOVEN today for complete information.



DE LUXE MODEL
For Better Grade Homes

WATERFILM BOILERS, Inc.
154 OGDEN AVENUE JERSEY CITY, N. J.
PLANTS: JERSEY CITY, N. J. • DOVER, N. J.

consequences such as cracked boiler sections or buckled plates may also result. It is because of the difficulty of obtaining repair parts for boilers under present conditions, that the interior of a boiler should be kept clean.

There are a number of warning signs that may be watched. The gauge glass is the first and easiest to see. If the water in the glass is rusty or oily, then the boiler needs attention. In a clean boiler, the water line is fairly steady, never fluctuating more than half an inch either way.

If the boiler needs cleaning, the use of a special boiler cleaning compound to remove accumulated sludge and scale from the interior is recommended.

◈

Q. Will a pressure type of oil burner serve well in firing a small pipeless furnace?

G.R.T., *Hollis, N. Y.*

A. Small pressure burners, tuned to fire somewhat less than 1.0 gph, are being used successfully in pipeless furnaces which have firepot diameters as small as 14" at the grate level. If you can install a good firebox, well-built and large enough for the smallest fire the pressure burner can give, you should be able to obtain good results on the installation you have in mind.

◈

Sheet Metal Contractors Hold First Annual Meeting

SHEET METAL CONTRACTORS National Association held its first annual meeting at Chicago, April 27-28, with 300 contractors and manufacturers attending. Discussion resulted in appointment of an Over-All Plans and Policy Committee to shape ways and means of bettering dealer education, standards of architectural and sheet metal work, commercial ventilation, labor relations and warm air codes. Officers are P. S. Varden, Buffalo, president; J. E. Marrick, Louisville, first vice-president; B. Kolbenschlag, St. Louis, second v-p; W. Blattman, New Orleans, third v-p; Clarence Mayers, Buffalo, secretary; and Carl Bundlach, Sandusky, treasurer.

◈

Mass. Dealers Discuss Serviceman Licensing

FIFTY MEMBERS and guests of the Massachusetts Oil Heating Association held their regular monthly dinner meeting at Boston, April 18, and discussed licensing of installation and servicemen. Representatives of Bell & Gossett Company described methods of figuring forced hot water heating installations and illustrated the discussion with slides.

Recent fires in the state attributed to range burners has brought up the subject of licensing members of the oilheating industry. It is felt that most of the present trouble is due to a shortage of servicemen with the result that owners are trying to do their own service with unfortunate results. The subject now is under investigation by state authorities.

After a discussion of oilburner licensing as presently done in New York City and elsewhere speakers from the floor advocated licensing as a means of improving the standards of the business and eliminating competition from marginal dealers. It was felt that oilburner dealers had no protection from the competition of licensed plumbers and electricians, though the dealers could not do plumbing and electrical work even on their

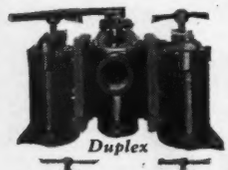
Proven by PERFORMANCE—

KRAISSL

Filters • Strainers • Pumps for FUEL OIL

Intelligent engineering is only the starting point. Consistent on-the-job performance over many years provides practical endorsement of KRAISSL design and manufacture.

Class 72 Strainers and Filters

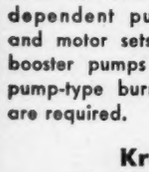


Single and Duplex types for suction or discharge service—any practical degree of filtration in units designed for low pressures as well as up to 500 lbs. hydrostatic test—easily removable filter basket insures quick cleaning.

Class 60 Heavy Oil Pumps

Standard equipment wherever independent pump and motor sets or booster pumps for pump-type burners are required.

Kraissl-Trumbull No. 522 Fuel Pump Unit



Rugged, dependable wall pump for gravity type oil burners having burning capacity of not more than 3 gals. per hour—Approved by Underwriters' Labs., Inc.

Submit your fuel-line problems to KRAISSL engineers—literature and prices on request.

THE KRAISSL COMPANY INCORPORATED

295 Williams Ave., Hackensack, N. J.

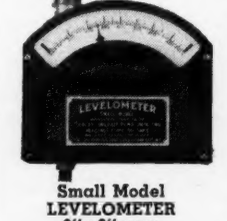
WITH OIL CONSERVATION MORE VITAL THAN EVER, Its Accurate Check-Up IS IMPORTANT—

INSTALL LEVELOMETER *Tank Gauges*

"THEY'RE ALWAYS DEPENDABLE"

Midget LEVELOMETER Lowest priced Remote Reading Gauge Built

Small Model LEVELOMETER 6"x6" case



Large Model LEVELOMETER 12"x12" case

A LEVELOMETER gauge on an oil tank installation eliminates guesswork—it insures accurate readings at all times.

Convenient, remote reading:—LEVELOMETER dial may be located at any reasonable point from tank and—large graduations and numerals make it easy to read.

LEVELOMETER tank gauges, approved by Underwriters' Laboratories, operate on an exclusive adaptation of the hydrostatic principle. No liquid is used in indicator to be affected by temperature changes, to evaporate, stain glass or to be blown out due to excessive pumping.

Get complete details regarding LEVELOMETER tank gauges—the Remote Reading gauges that insure accurate—trouble free check-up.

THE LIQUIDOMETER CORP.

36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

own installations. It was pointed out that oilburner licensing has never corrected this situation in any area where it has been made compulsory.

The meeting was conducted by Orodon Hobbs, president. Fred N. Beckwith is secretary.

◈

More Industrial Conversions In Pacific Northwest

THE PETROLEUM ADMINISTRATION FOR WAR on April 13 announced the start of a new campaign to convert approximately five million barrels of residual fueloil industrial demand in the Pacific Northwest to coal as quickly as possible. Solid Fuels Administration has assured PAW that the necessary million and a half tons of coal will be provided, if ordered and transported this Summer. Industrial demand for residuals has exceeded supply for some months, and stocks have dwindled. Acceleration of the Pacific war effort precludes the possibility of industry demands being met, so the conversions are inescapable, according to PAW.

◈

Non-Residential Buildings Get Hardship Relief

IN THE NEW REVISED RATION ORDER 11, Section 1394.5347 outlines conditions under which hardship rations may be allowed, but limits these to residential premises. Amendment No. 2, effective April 15, deletes the clause, "to residential premises," thus permitting hardship grants for heat or hot water to other building types.

◈

Midyear Meet of NWAHACA Planned June 7-8 at Chicago

WITH MAJOR EMPHASIS on postwar product and market planning, the National Warm Air Heating and Air Conditioning Ass'n. will hold its annual mid-year meeting at Chicago's Hotel Stevens June 7 and 8. Announced speakers are Professors A. P. Kratz and S. Konzo, who supervise the Association's research program at the University of Illinois, Dr. Ralph Sherman of Battelle Memorial Institute, who will discuss future fuel resources, and C. E. Lewis, pres. of OHI, who will discuss future oil supply.

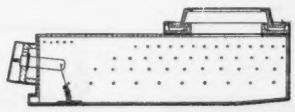
Here are Seven Steps to Postwar Heating Profit

1 Write for a copy of "How to Get Real Profits in Postwar Heating", a booklet which tells how the demand for automatic oil heat in small homes can make real profit for you.

2 Contact your nearest H. C. Little Burner Co. direct factory representative for ideas on how to merchandise automatic oil heat. We'll gladly furnish his name.

3 Review the entire proposition in terms of your set-up.

4 Compare the equipment of competitive manufacturers. We urge this because the H. C. Little record of prewar sales and postwar potential looks even better when viewed in a competitive light, for...



H. C. LITTLE
LEADS THE OIL-HEATING FIELD

WITH THE ONLY AUTOMATIC VAPORIZING TYPE OIL BURNER EMPLOYING ELECTRIC IGNITION

5 Get a priority on future profit by securing an H. C. Little franchise for your community.

6 Absorb all the H. C. Little product knowledge and sales ammunition you can, as soon as you can.

7 Then, begin your pre-selling. 816,000 families report that they intend to install new heating equipment within six months after the war.* You can start selling them today.

Take That First Step Right Now!

Send for a copy of "How to Get Real Profits in Postwar Heating."

H. C. LITTLE BURNER CO.
San Rafael, Calif.
(Branches in Principal Cities)

*From recent U.S. Chamber of Commerce figures on postwar demand.

Fuel Saving Formula for Mineral Wool Insulation

THE FUEL SAVINGS to be expected through the use of mineral wool insulation can be calculated through the use of the following simple formula and tables. The formula was developed by the chairman of the Technical Committee of the National Mineral Wool Association.

It is assumed that the oil burner has been put in condition to operate at its average efficiency, approximately 70 percent. The potential savings are then expressed by the formula

$$G = g \times A \times D$$

where G equals the gallons of oil saved per heating season; g equals the value from Table 1, depending on the treatment adopted; A equals the area of surface to be treated and D equals 1,000 degree-days. If the locality is listed as 5,000 degree-days, use 5.0 in the formula.

Example: Assume that building insulation is being applied to an oil-burning house in the locality of Boston, with the following insulatable areas: Ceiling, 600 sq. ft.; walls, 1,100 sq. ft.; glass, 230 sq. ft.

Table 1—Value of (g) for Various Applications of Insulation

(Oil burner 70 percent efficient)

Ceiling, Wall or Window Treatment	(g)
Ceiling—	
No insulation	
1-in. mineral wool fill or blanket	0.030
2-in. mineral wool fill or blanket	0.045
3-in. mineral wool fill or blanket	0.053
4-in. mineral wool fill or blanket	0.058
Walls—	
No insulation (frame or masonry)	
3⅝-in. mineral wool "blown in"	0.035
Floors—	
Single; no basement	
4-in. mineral wool	0.076
Double; no basement	
4-in. mineral wool	0.054
Windows—	
Single	
Storm sash	0.133

(Values for g in Table 1 are per 1,000 degree-days per square foot. Actual calculations were reduced 20 percent to cover unusual conditions of construction and variance of winter conditions.)

Boston is rated at 6,003 degree-days. Therefore D in the formula will be 6.003. From Table 1 select for calculation the following values for g:

Ceiling (4-in. mineral wool) . . = 0.058
Walls (3⅝ in. mineral wool) . = 0.035
Windows (storm sash) . . . . . = 0.133

Applying these values in the formula, the savings are:

Ceiling
$G = 0.058 \times 600 \times 6.003 = 208$ gal.
Walls
$G = 0.035 \times 1{,}100 \times 6.003 = 231$ gal.
Windows
$G = 0.133 \times 230 \times 6.003 = 183$ gal.
Total saved . . . . . 622 gal.

In a house thus protected against unnecessary heat losses, the thermostat should maintain a constant temperature of 65° F even if the basic fueloil ration is cut very drastically from normal requirements. An uninsulated house under the same conditions could not maintain a constant temperature of over 54.3° F in the Boston area.

◈

SHELL UNION OIL CORP. and subsidiaries had net 1943 income of $24,542,556, after $10,000,000 had been set aside for postwar contingencies. This is equivalent to $1.82 a share on common stock, compared with $1.29 in 1942. The Company reports 5,906 prewar employees, or 22% of its male staff, now in the armed forces. The Company pays such men the difference between their service pay and their former income, up to 50% of the latter.

WHY THE NOZZLE SCARCITY?

Fig. F-80

Even though nozzle production is at the highest rate in our history (and still increasing) most of our output is being taken by urgent military requirements, including many "restricted" applications. War orders *must come first* so deliveries on quantity orders with low priorities are rather extended.

Note: Emergency orders for one or two nozzles are being shipped promptly.

Do you have Catalog D?

MONARCH MFG. WORKS, INC.
E. WESTMORELAND AND SALMON STS., PHILADELPHIA 34, PA.

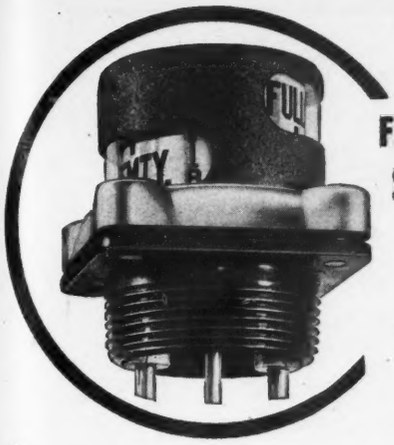
1. Absorbs condensation—keeps entire system water-free ✓
2. Dissolves gums and sludges ✓
3. Eliminates storage tank cleanings and pump-outs ✓
4. Keeps lines clear, prevents clogging and congealing ✓
5. Insures quicker starting ✓
6. Lessens oil baking on atomizers. Fewer burner changes ✓
7. Reduces carbon and soot ✓
8. Improves combustion ✓
9. Gives cleaner firing, faster heating ✓
10. Increases furnace and boiler capacity
11. Eliminates oil odors, smoky chimneys, puffs
12. Refractory brick work lasts longer

KLEEN-FLO contains no acids or harmful ingredients.

Check THESE BENEFITS WITH KLEEN-FLO

KLEEN-FLO increases oil burner efficiency — one quart conditions 500 gallons of oil — simply add thru oil fill line. For EXTRA year-round profits feature KLEEN-FLO—Get the profit making facts today.

Liquid
KLEEN-FLO
FUEL OIL CONDITIONER
DISTRIBUTED BY LEADING SUPPLY JOBBERS
COMBUSTION UTILITIES CORP.
1451 Broadway, New York 18, N. Y.
Chicago Office: 308 W. Washington St.



FOR CUSTOMER SATISFACTION *Install* ROCHESTER "UNIVERSAL" GAUGES

ROCHESTER "Universal" Gauges are built especially to meet the requirements of basement type oil storage tanks. Double dial —one visible to the delivery man outside the cellar, and one for the owner inside—is a convenient and much appreciated feature. Widely spaced, generous size graduations and figures are made possible by the extreme length of the dial which rotates through a 300° arc. There's no chance of leakage either.

The same magnetic principle used in Rochester Gauges to bring safety in gauging hazardous liquids under pressure is employed in these "Universal" Gauges. That's why they're listed as Standard by Underwriters Laboratories. Rochester "Universal" Gauges are easy to install in any location on the tank and without the necessity of emptying the tank. Obtainable on AA-3 priority from your jobber.

ROCHESTER MANUFACTURING CO.
8 ROCKWOOD STREET, ROCHESTER 10, N. Y.
Makers of Fine Gauges "FOR THE TRUE INSIDE STORY"

ROCHESTER *Individually Calibrated* GUARANTEED ACCURATE **INSTRUMENTS**
FOR ACCURATE LIQUID LEVEL, PRESSURE and TEMPERATURE INDICATION

GUARDIAN FLEXIBLE COUPLINGS

Sleeve end of coupling is close sliding fit on blower wheel hub. Power is transmitted through four spline ribs of coupling fitting four spline grooves in blower wheel hub.

For OIL BURNERS

This exclusive direct drive coupling, with rubberized cushion gripped permanently, has no parts to get out of order, or to lubricate. Minimizes misalignment, free-end float, and backlash. Custom-made for specific job. Immediate attention. More than 300,000 have been tested and proved in oil burners during the last five years.

Manufacturers, Jobbers or Dealers—

GUARDIAN UTILITIES CO.
218 E. Michigan St., Michigan City, Ind.
WRITE or WIRE

Dependable HEATERS *use* *Dependable* (AP) OIL CONTROLS

(AP) MODEL 240-U CONSTANT LEVEL OIL CONTROL
Safely and accurately regulates the flow of oil to gravity type oil burning space heaters, ranges, water heaters and furnaces. Has important fuel compensation features. Manually adjustable or easily converted to automatic operation.

• The A-P Dependable Oil Control illustrated above is one of your most vital selling advantages on any oil burning heater. First of all, it's a money-maker, for it is a practical assurance of constant heating satisfaction . . . the kind that means valuable word-of-mouth advertising for the heaters you sell.

• It is well, for your own future profits, to insist that the oil burning appliances you sell come equipped with A-P DEPENDABLE Oil Control Valves.

• You'll probably want to know more about the exclusive engineering features that make A-P control-accuracy possible. Write for Bulletin 428-U.

AUTOMATIC PRODUCTS COMPANY
2458 North 32nd Street, Milwaukee 10, Wisconsin

(AP) *Dependable* OIL CONTROL VALVES

MR. FUEL OIL COMPANY PRESIDENT---

Do you remember when you used to bring a box of candy to your best girl—and then eat it all yourself?

Installing a VENTALARM on a customer's tank is just about the same. You create a lot of good will—but the *real* benefits come back to you.

The elimination of non-delivery stops, and a saving of at least five minutes on every delivery will add a substantial sum to your operating profit.

***Now* is the time to prepare for next season.**

SCULLY SIGNAL COMPANY, 88 First St., Cambridge, Mass.

Sunheat Furnace Oils are still marketed exclusively for domestic burners like those you service. While your customers may not be able to obtain the quantity of fuel they desire there has never been any rationing on the quality of Sunheat.

To help assure your customers of comfortable heat and trouble-free service next winter, recommend Sunheat Furnace Oil. Remember . . . for *hot* heat . . . for *sure* heat . . . it's *Sunheat.*

SUNHEAT
FURNACE
OILS

SUN OIL CO., PHILADELPHIA

DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE			
	March		Percent		(Sept. 1 to Mar. 31)			Percent
Normal	1943	1944	Change*		Normal	1943	1944	Change*
955	1039	1116	+16.8	Albany	5817	6350	6316	+ 8.5
389	450	372	— 4.3	Atlanta	2794	2648	2674	— 4.2
650	634	719	+10.6	Baltimore	4063	3909	4059	— 0.1
852	902	956	+12.9	Boston	5067	5264	5257	+ 3.7
1010	1076	1084	+ 7.3	Buffalo	5782	6022	6053	+ 4.6
871	1019	1014	+16.4	Chicago	5410	5965	5655	+ 3.9
681	783	764	+12.1	Cincinnati	4487	4325	4522	+ 0.7
874	897	959	+ 9.7	Cleveland	5123	5418	5428	+ 5.9
284	440	319	+12.3	Dallas	2269	2265	2333	+ 2.8
792	884	941	+19.0	Denver	4490	4604	4938	+ 9.9
849	1022	1034	+21.7	Des Moines	5742	6011	5699	— 0.7
992	967	1050	+ 5.8	Detroit	5825	5836	5752	— 1.2
962	1034	1057	+ 9.8	Grand Rapids	5817	5927	5854	+ 0.3
871	935	962	+10.4	Hartford	5296	5574	5600	+ 5.5
982	1363	1184	+20.5	Helena	6548	7420	6720	+ 2.6
154	212	133	—13.6	Houston	1283	1196	1278	— 0.3
751	852	830	+15.1	Indianapolis	4890	5046	4878	— 0.2
657	819	801	+21.9	Kansas City	4538	4657	4656	+ 2.6
209	194	179	—14.3	Los Angeles	1100	951	1126	+ 2.3
595	706	682	+12.9	Louisville	4627	4082	3973	+ 1.0
969	1116	1100	+13.5	Milwaukee	5994	6598	6087	+ 1.5
1082	1286	1243	+14.8	Minneapolis	7063	7608	6796	— 3.7
130	210	100	+ 2.3	New Orleans	1175	1184	1192	+ 1.4
785	791	872	+11.0	New York	4627	4557	4762	+ 2.9
813	909	1051	+29.2	Omaha	5508	5699	5668	+ 2.9
697	699	778	+11.6	Philadelphia	4236	4277	4361	+ 2.8
767	847	833	+ 8.6	Pittsburgh	4809	4916	4891	+ 1.7
1003	1097	1113	+10.9	Portland, Me.	6085	6605	6635	+ 9.0
530	555	551	+ 3.9	Portland, Ore.	3603	3498	3378	— 6.2
866	862	911	+ 5.1	Providence	5158	5123	5124	— 0.6
616	761	735	+19.3	St. Louis	4209	4270	4280	+ 1.6
709	770	856	+20.7	Salt Lake City	4885	4912	5372	+ 9.9
314	290	286	— 8.9	San Francisco	2041	1940	1845	— 9.6
1343	1498	1394	+ 3.7	Sault Ste. Marie	7700	7948	7515	— 2.4
595	602	589	— 1.0	Seattle	3816	3670	3441	+ 9.6
889	973	1034	+16.3	Toledo	5442	5700	5826	+ 7.0
637	610	688	+ 8.0	Washington	4133	3889	4129	— 0.1

*Compared with normal.

Six TIMES THE POWER

Multiply the ordinary solenoid valve by six and you get an idea of the powerful lever action developed by General Controls' K-10. This quiet, two-wire, current failure valve is easy to install on air-conditioning combustion or refrigeration equipment. K-10 handles air, gas, water, light and heavy oils, and steam. Positive opening and complete shut-off are assured. Designed for either normally closed or open. Available any voltage. A.C. or D.C. and up to 1¼" I.P.S., port sizes up to ⅝". For specifications write for Catalog

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There are more than two and a half million home owners in this area now burning hard coal. They know hard coal, and trust it. They prefer automatic heat.

They will be ready buyers of Automatic Anthracite Stokers in the post-war days ahead. WILL YOU BE READY TO GET YOUR SHARE OF THIS MARKET?

GET ON OUR MAILING LIST NOW!

We have specialized in building domestic anthracite stokers for more than 15 years. We will offer a most complete line of post-war coal burning equipment.

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CATSKILL, NEW YORK

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OUR FIRST INTEREST RIGHT NOW IS IN

BRINGING OUR MEN HOME!

Manufacturing material for war — A. B. C.'s production facilities are concentrating 100% on whatever contribution they can make in hastening the winning of the war — and bringing the men and women of the armed forces home. There's a big job yet to be done and, until the war is won, A. B. C.'s engineering and designing talent will be focused upon the vital task at hand. Nothing short of an *all*-out effort can do the job as it must be done—as quickly as is humanly possible!

YOU CAN HELP BRING THEM HOME SOONER BY BUYING MORE WAR BONDS!

AUTOMATIC BURNER CORP.

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ABC Oil Burner

New Products

Ten Blower Units Offered In Low Capacity Ranges

TOY SIZE motorized blower units in ten sizes and capacities ranging up to 180 cfm have been announced by Eastern Air Devices, Inc., Brooklyn, N. Y., manufacturers of motors and control devices. These blowers for small capacity applications were developed for war uses, and now are being made available to industry.

The company builds small motors for light power applications. The L-R No. 2 blower unit, delivering 10 cfm with a 115 volt, 60 cycle motor operating at 3300 rpm has an input of 9 watts, and a 1/100 h.p. motor, weighing one pound, has a length of 2-11/16 in. and is 1-3/4 in. in diameter.

◈

Air Pressure Burner For Commercial Uses

AVAILABLE for manufacturing license is a low pressure burner using No. 2 or 3 oil, designed for small commercial applications such as ranges, ovens and furnaces, which has been announced by William Roxby, Daytona Beach, Fla. It is not now in production.

Air pressure on an 80-gal. (standard) or 12-gal. (portable) tank is created by a compressor powered by a ¼ h.p. motor. Low pressure forces oil and air through separate lines to the nozzle. Ignition may be manual, oil, gas or electric.

The firing head is brass with needle valves on both sides to regulate oil and air flow. A valve on the firing head regulates the firing rate.

Integral tank and compressor unit can be located at any remote location, and piped for oil and air delivery to the firing head with tubing.

Drum Plug Wrench

INDUSTRIAL Products Co., Philadelphia, Pa., has announced the Ipco Drum Plug Wrench, designed for removing and tightening plugs or bungs in steel drums. It is made of steel alloy, with a long iron pipe handle, and also monel metal, which has low sparking qualities.

◈

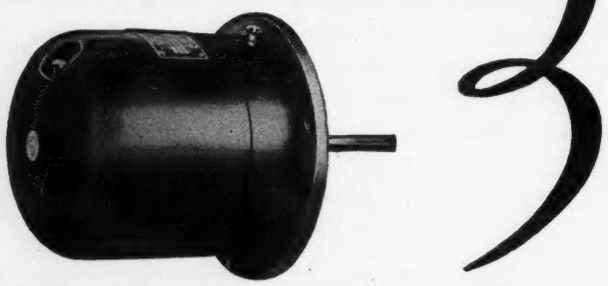
Pipe Gage

THE THREE-POINT Gage Co., Chicago, Ill., has announced a new pocket size, Three-Point Pipe Gage for measurement of all sizes of pipe from ⅛" to 12".

This gage consists of two pivoted steel plates with edges curved at three points for contact with the pipe to be measured, together with scale which automatically registers the pipe size in terms of inside diameter and the drill size for tapping.

An advantage claimed for this new gage is that it is necessary to contact only a small section of the pipe contour and that it will measure pipe in any position, even against the wall or in a corner, and will measure a covered pipe if there is a small opening near a union or other fit-

OHIO MOTORS



Blend Perfectly with Modern Appliances

Types—Split Phase and Capacitor
Speeds—1140, 1725, 3500 RPM
Power—1/20 to ½ HP, depending on speed
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Frequencies—60, 50 and 25 cycles
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is the Name to Remember

— for oil burners . . . oil-designed furnaces and boilers *that assure you of:*

- ✓ Satisfied, loyal customers
- ✓ Minimum service trouble
- ✓ Efficient, economical operation
- ✓ Design features that sell
- ✓ Profitable manufacturer-dealer relations

H-1

HEIL ANSWERS UNCLE SAM'S CALL . . . and helps the Arsenal of Democracy supply materials for Victory!

THE HEIL CO.
GENERAL OFFICES: MILWAUKEE, WISCONSIN

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GULF OIL CORPORATION

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Quality Fuel, Diesel, and Heating Oils for a Nation on the Road to Victory

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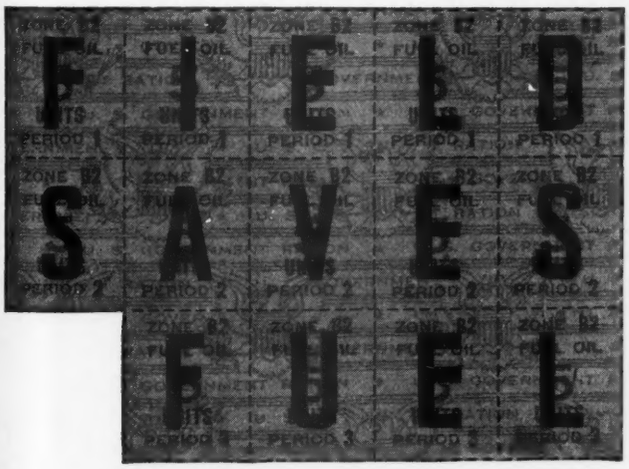
Boston, Mass.	New York City, N. Y.	Philadelphia, Pa.
Hancock 3700	*Bowling Green 9-5400*	*Pennypacker 4240*



Your customer's supply of fuel oil or coal will produce more heat, when his heating plant is equipped with a Field Draft Control. And Field Controls are available now for installation in every heating plant in your community. No priority necessary.

Help Uncle Sam's fuel conservation program, and build good will with your customers, too. The fast moving, easy selling, easily installed Field Control line is a profitable unit to handle. Write us for complete information.

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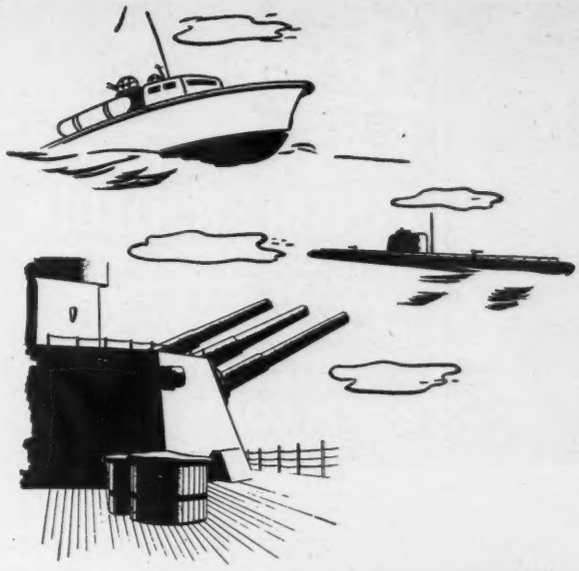
MENDOTA, ILLINOIS



Tuthill Pumps and Fuelstats are serving where they can help most in winning the war. Were you to inspect equipment on the fighting fronts, you'd find these dependable pumps on battleships, submarines, naval guns, landing ships, smoke screen apparatus, water distilling equipment and on scores of other war-time applications.

That's why it is so essential to keep present Tuthill equipment on the home front operating at peak efficiency through servicing or re-conditioning at our authorized field service stations or through the factory.

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are serving
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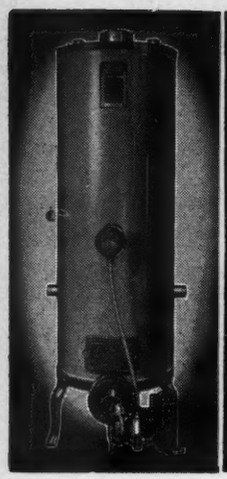

Bock OIL BURNING WATER HEATERS

INTERMITTENT OPERATION
ELECTRIC IGNITION
WITH BOTH VAPORIZING AND PRESSURE TYPE BURNERS
Available in Six Sizes
WRITE OR WIRE TODAY FOR COMPLETE INFORMATION
BOCK CORPORATION
MADISON WISCONSIN

NOW
is the time
to Protect against
Water Level Failure
use
Newark Controls
Bloomfield New Jersey

ting where the gage may be slipped in. It is also maintained that the gage can be applied in dark places and taken to the light for reading. The gage is constructed of steel with etched numerals, and the size when closed is only 2½" x 4¼".

◈

L-74 has been amended to remove the necessity for a priority rating on Class C oil burners. Vaporizing burners can now be delivered to anyone, but PAW permission still is required to get oil for a new installation.

L-79 has been changed to add items to List A to which a dealer may assign a AA-3 rating when ordering the units or repair parts. Direct fired and indirect water heaters now are on the list, except electric or industrial water heaters, and the bucket-a-day type for solid fuels. The list now also includes low pressure steel boilers, furnace fans of 16-in. diameter or less (without motor), and forced draft blowers. Steel boilers designed for more than 15 lbs. pressure are in List B, for which repair parts are eligible for a AA-3 rating.

WISCONSIN Oil-Heat Association, Milwaukee, has issued a folder for its members' use, to urge customers to order their summer check-up of equipment now. To make possible a thorough job, the folder explains that manpower and material shortages make it impossible to do all this work next fall. This is the first instance reported where an association has undertaken this service promotion for its members.

Ray C. Malvin, general plant manager of Fitzgibbons Boiler Co., Oswego, N. Y., has been named vice-president and head of the Company's postwar product planning. *O. F. Noss,* recently appointed assistant sales manager will supervise postwar sales planning.

Henry W. Uhl and *H. E. Nafe* have been appointed, respectively, regional managers for Airtemp Div., Chrysler Corp., at Chicago and Philadelphia, according to an announcement by *Paul B. Zimmerman,* vice-president and general sales manager. Both men were formerly with Chrysler's Fargo Truck Division.

Two New England Industry Meetings Scheduled for May

INDEPENDENT OIL MEN'S Association of New England will hold its 21st annual convention and war conference on May 11 at Boston's Hotel Statler. Sessions start at 10 A.M. and close with the dinner meeting at 6:30. Headline speakers announced are Ralph K. Davies, Deputy Petroleum Administrator, and Colonel Bryan Houston, Deputy Administrator for Rationing, OPA. Clyde Morrill is exec. director of the Ass'n.

On May 31, also at the Statler in Boston, will be held the Spring meeting of the Oil-Heat Institute of New England. The session will start with a noon luncheon, followed by a series of talks on the Industry's current problems. Speakers have not yet been announced. Fred Beckwith is executive secretary.

◈

FHA has announced that it insured loans for 308,167 maintenance and repair jobs under Title I last year, totalling $96,374,462. Loans made after April can be financed with November 1 initial payments.

OIL SOOT E-Z DESTROYER

WAR ON FUEL OIL WASTE

Simply spray E-Z, and the soot in fire chamber and flues vanishes instantly. Increases efficiency of oil. One trial will convince you. "EASY" TO USE . . . ECONOMICAL TOO!
Makes satisfied customers.
DISTRIBUTORS: Write for fine proposition.

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Enclosed find check ( ) money order ( ). Send the following prepaid:

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HAND CRIMPING TOOL

IT CUTS
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AND ALSO CRIMPS
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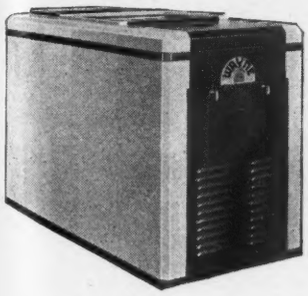
WAYNE OIL-FIRED



FURNACE UNITS

60,000 to
400,000 B.T.U.

PROMPT SHIPMENT

on proper priority

The complete line of Wayne oil-burning furnaces and burners is again available.

WAYNE OIL BURNER CO., 801 Glasgow Ave.
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WAYNE'S V-DAY LINE WILL BE COMPLETE

OIL-FIRED, GAS-FIRED, COAL-FIRED FURNACES, STOKERS, BOILERS, WATER HEATERS. CONVERSION BURNERS FOR OIL AND GAS.

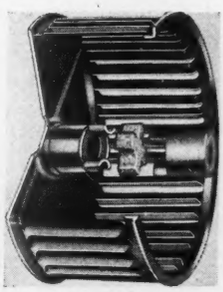
LINE UP WITH WAYNE FOR POST WAR PROFITS

NOW IS THE TIME FOR RECONDITIONING OIL AND AIR INSTALLATIONS

IMMEDIATE DELIVERIES

L-R FLEXIBLE COUPLINGS

L-R Type "IA" Uniflex Pat. and Pats. Pend.



Manufacturers make blower wheels with L-R jaws integral with hub.

ANY QUALITY FROM STOCK
Most efficient correction for misalignment, and for take-up of surge and vibration. Noiseless. Non-Lubricated. Couplings furnished 2 or 3-piece, all sizes.

Wire or write for full details and prices.

LOVEJOY FLEXIBLE COUPLING CO.
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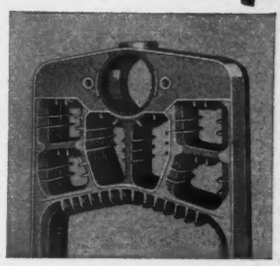

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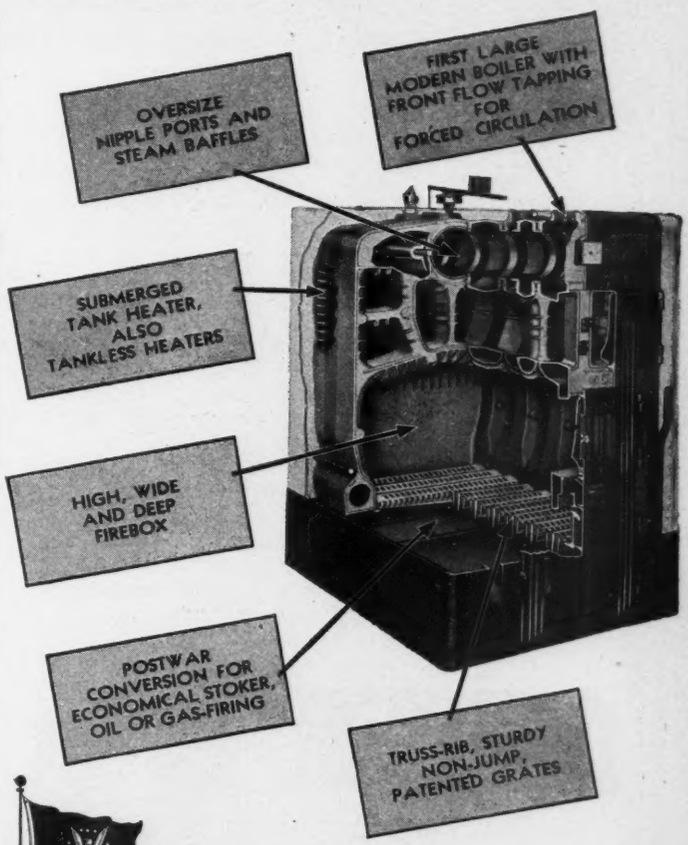
HEATING SURFACE

Obtainable Now!

WITH THE NO. 3 SERIES MODERN HEAT EXTRACTOR BOILER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FIRST LARGE MODERN BOILER WITH FRONT FLOW TAPPING FOR FORCED CIRCULATION
SUBMERGED TANK HEATER, ALSO TANKLESS HEATERS
HIGH, WIDE AND DEEP FIREBOX
POSTWAR CONVERSION FOR ECONOMICAL STOKER, OIL OR GAS-FIRING
TRUSS-RIB, STURDY NON-JUMP, PATENTED GRATES

Better Features for Better Heating

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50 YEARS OF SERVICE TO THE HEATING INDUSTRY

CONSUMER DEMAND PROVES THE OIL BURNER OF YOUR CHOICE SHOULD BE

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The Oil Burner ***FIRST*** *in Sales Throughout Metropolitan* ***NEW YORK***

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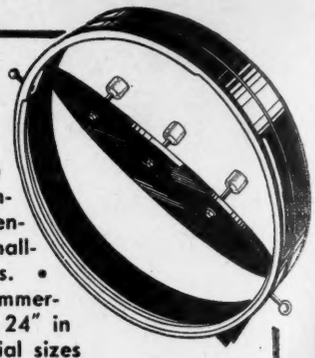

The Original. Still the Best. Hundreds of Thousands in Use. • Holds the draft constant in the fire box. • Scientific draft control for the smallest to the largest jobs. • Stove, domestic, and commercial sizes from 4" to 24" in diameter. • Industrial sizes from 24" x 24" to 5' x 12'.

Write for literature and trade price

PREFERRED UTILITIES MFG. CORP.
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Oilheating Trends

(*Continued from page* 11)

areas, though the total gallonage is moderate. Also, more tanks approach empty these days, stirring up accumulated sediment and sludge. Again, catalytic cracking plants turn out a changed type of heating oil. It has more heat value than the thermally-cracked fueloil, but has altered burning characteristics . . . usually it's heavier, with higher flash and end points. Much more of this catalytic product will have to be burned next season, so service departments were asked their experience this season. 47% report no increase in service calls due to oil condition —some of those saying they had less trouble. The other 53%, however report decidedly increased trouble due to oil.

Asked how the oil affects the burners, it is difficult to know which troubles are tied to catalytic product and which to just bad oil. This list appears to refer to catalytic product:

"Heavier oil causes wider spray and requires resetting ignition assembly" . . . "Clogs pumps and nozzles; many more nozzles need replacing" . . . "Strainers look as if someone used a tar brush on them" . . . "Oil varies greatly; setting a burner for one load was not right when next load delivered" . . . "Heavier oil gums up the purolators and pumps" . . . "High end point causes trouble in vaporizing burners" . . . "Hard to correct smoky fires, also ignition trouble" . . . "Ignition trouble, particularly on rotary burners; considerably more pump and strainer trouble" . . . "Calls per burner more than doubled since 1941." These are only a few of the remarks—the milder ones. The subject needs a lot more study.

◈

May Not Switch Types of Heating Systems—WPB

THE WAR Production Board April 13 interpreted Order L-79, Plumbing and Heating Equipment, as prohibiting the substitution of one type of heating system for another if the substitution requires the replacement of a usable distribution system.

This interpretation was issued in answer to questions which have arisen as to whether Order L-79 permitted the substitution of a worn-out or damaged furnace by a hot water or steam boiler, since such a change would entail the replacement of the entire distribution system.

◈

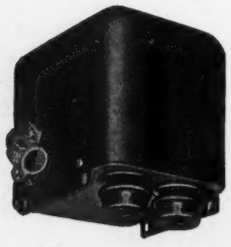
New Stanolind Pipeline Taps Largest Unused Supply

LOCKED IN THE PERMIAN BASIN of West Texas has been a potential crude oil supply of 300,000 barrels a day, unavailable due to lack of transportation. The only pipeline from the field was Magnolia's eight-inch. On March 31 Standard of Indiana started operating its new 16" line that taps the Basin at Slaughter, Texas, and connects at the Eastern end with Standard's Chicago line at Drumright, Okla. Its initial carrying capacity is 50,000 B/D, but this can later be boosted to 116,000 B/D by adding pumping stations. Magnolia is also building a new 12" line from the Basin, with ultimate capacity of 62,000 B/D. The crude has high sulphur content.

DONGAN TRANSFORMERS

For Your Post-War Oil Burner

If you are planning to start production of your post-war oil burner the instant your plant facilities are released from war production, it is time to consider making at least tentative commitments for the transformers you will need. Write us as to your anticipated requirements.



Voltages from 5,000 to 15,000. A variety of sizes and mountings. Special types built to specifications.

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"The Dongan Line Since 1909"

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OIL-BURNING WATER HEATERS FOR GOVERNMENT PROJECTS
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